RESEARCH CENTER

FIELD

Activity Report 2019

Section Dissemination

ALGORITHMICS, PROGRAMMING, SOFTWARE AND ARCHITECTURE

NETWORKS, SYSTEMS AND SERVICES, DISTRIBUTED COMPUTING

<div style="text-align:center; color:red; font-weight:bold">ANTIQUE Project-Team</div>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Jérôme Feret is a guest member of the Steering Committee of the Conference on Computational Methods in Systems Biology (CMSB).
- Jérôme Feret is a member of the Steering Committee of the Workshop on Static Analysis and Systems Biology (SASB).
- Xavier Rival is a member of the Steering Committee of the Static Analysis Symposium (SAS).
- Xavier Rival is a member of the Steering Committee of the Workshop on Tools for Automatic Program Analysis (TAPAS).
- Caterina Urban is a member of the Executive Board of ETAPS (European Joint Conferences on Theory & Practice of Software).

10.1.1.2. Member of the Organizing Committees

Caterina Urban serves as Chair of the Award Committee of the ETAPS Doctoral Dissertation Award 2020.

10.1.2. Event organization

- Cezara Drăgoi co-organize "VDS: Workshop on Verification of Distributed Systems" https://goto.ucsd.edu/vds/ with Klaus v. Gleissenthall from Univerisity of California, San Diego. This is a workshop that brings together two communities: verification and distributed systems by having participants from the two communities.

10.1.3. Scientific Events: Selection

10.1.3.1. Member of the Conference Program Committees

- Jérôme Feret served as a Member of the Program Committee of SASB 2019 (Static Analysis and Systems Biology).
- Jérôme Feret served as a Member of the Program Committee of CMSB 2019 (Computational Methods in Systems Biology).
- Jérôme Feret served as a Member of the Program Committee of CIBCB 2019 (Computational Intelligence in Bioinformatics and Computational Biology).
- Jérôme Feret served as a Member of the Program Committee of HSB 2019 (Hybrid Systems Biology).
- Jérôme Feret is serving as a member of the Program Committee of CMSB 2020 (Computational Methods in Systems Biology).
- Jérôme Feret is serving as a member of the Program Committee of HSB 2020 (Hybrid Systems Biology).
- Xavier Rival served as a Member of the Program Committee of SAS 2019 (Static Analysis Symposium).
- Xavier Rival is serving as a Member of the Program Committee of POPL 2020 (Symposium on Principles Of Programming Languages).
- Caterina Urban served as a member of the Program Committee of VMCAI 2019 (Verification, Model Checking, and Abstract Interpretation).

- Caterina Urban served as a member of the Artifact Evaluation Committee of POPL 2019 (Symposium on Principles of Programming Languages).
- Caterina Urban served as a member of the Program Committee of CAV 2019 (Computer Aided Verification).
- Caterina Urban served as a member of the Artifact Evaluation Committee of PLDI 2019 (Programming Languages Design and Implementation).
- Caterina Urban served as a member of the Program Committee of NSV 2019 (International Workshop on Numerical Software Verification).
- Caterina Urban served as a member of the Program Committee of LOPSTR 2019 (Logic-based Program Synthesis and Transformation).
- Caterina Urban served as a member of the Program Committee of TAPAS 2019 (Workshop on Tools for Automatic Program Analysis).
- Caterina Urban served as a member of the Program Committee of EMSOFT 2019 (Embedded Software).
- Caterina Urban served as a member of the Program Committee of iFM 2019 (integrated Formal Methods).
- Caterina Urban serves as a member of the Program Committee of VMCAI 2020 (Verification, Model Checking, and Abstract Interpretation).
- Caterina Urban serves as a member of the Program Committee of ESOP 2020 (European Symposium on Programming).
- Caterina Urban serves as a member of the Program Committee of CAV 2020 (Computer Aided Verification).
- Caterina Urban serves as a member of the Program Committee of SOAP 2020 (Workshop on the State Of the Art in Program Analysis).
- Cezara Drăgoi served as a member of the Program Committee of POPL 2020 (Symposium on Principles of Programming Languages)
- Cezara Drăgoi served as a member of the Program Committee of PLDI 2020 (Symposium on Programming Languages Design and Implementations)
- Cezara Drăgoi served as a member of the Program Committee of CAV 2019 (Computer Aided Verification).
- Cezara Drăgoi served as a member of the Program Committee of VMCAI 2019 (Verification, Model Checking, and Abstract Interpretation).
- Cezara Drăgoi served as a member of the Program Committee of NETYS 2019 (Conference on Networked Systems).

10.1.3.2. Reviewer

- Marc Chevalier served as Reviewer for SAS 2019 (Static Analysis Symposium).
- Marc Chevalier served as Reviewer for VMCAI 2020 (Verification, Model Checking, and Abstract Interpretation).
- Jérôme feret served as Reviewer for CAV 2019 (computer aided verification).
- Xavier Rival served as Reviewer for ESOP 2020 (European Symposium on Programming).
- Caterina Urban served as Reviewer for NFM 2019 (NASA Formal Methods).
- Caterina Urban served as Reviewer for POPL 2020 (Symposium on Principles of Programming Languages).

10.1.4. Journal

10.1.4.1. Member of the Editorial Boards

- Jérôme Feret serves as a Member of the Editorial Board of the Frontiers in Genetics journal and the Open Journal of Modeling and Simulation.
- Jérôme Feret served as co-Editor of an Issue of the Theoretical Computer Science journal, that is composed of papers from SASB 2016 and VEMP 2016, and appeared in 2019.
- Jérôme Feret served as co-Editor of an Issue of the IEEE/ACM Transactions on Computational Biology and Bioinformatics, that is composed of papers from CMSB 2017, and appeared in 2019.

10.1.4.2. Reviewer - Reviewing Activities

- Jérôme Feret served as a Reviewer for Fundamenta Informaticæ.
- Jérôme Feret served as a Reviewer for Theoretical Computer Science.
- Jérôme Feret served as a Reviewer for Transactions on Computational Biology and Bioinformatics.

10.1.5. Invited Talks

- Caterina Urban was invited to give a talk at the Gran Sasso Science Institute, L'Aquila, Italy.
- Caterina Urban was invited to give a talk at SAS 2019 (Static Analysis Symposium) [13].

10.1.6. Leadership within the Scientific Community

- Xavier Rival is a member of the IFIP Working Group 2.4 on Software implementation technology.

10.1.7. Scientific Expertise

- Jérôme Feret reviewed 5 proposals for the Prin 2017 (Research Projects of National Relevance) Program (Italian Ministry of Education and Research)

10.1.8. Research Administration

- Jérôme Feret and Xavier Rival are members of the Laboratory Council of DIENS.
- Jérôme Feret is member of the PhD Review Committee (CSD) of Inria Paris.
- Jérôme Feret is deputy head of study of the Department of Computer Science of École normale supérieure.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence:

- Marc Chevalier, Mathematics, 40h, L1, FDV Bachelor program (Frontiers in Life Sciences (FdV)), Université Paris-Descartes, France.
- Jérôme Feret and Xavier Rival (lectures), and Marc Chevalier (tutorials), "Semantics and Application to Verification", 36h, L3, at École Normale Supérieure, France.
- Xavier Rival, "Introduction to Static Analysis", 8h, L3, at École des Mines de Paris, France.
- Xavier Rival, "Functional Programming", 21h, L3, Bachelor Programme at at École Polytechnique, France.

Master:

- Xavier Rival, "Introduction to Static Analysis", 12h, Internet of Things Master (retraining curriculum, EXED), France.
- Cezara Drăgoi, Jérôme Feret, Antoine Miné, and Xavier Rival, "Abstract Interpretation: application to verification and static analysis", 72h, M2. Parisian Master of Research in Computer Science (MPRI), France.

- Vincent Danos and Jérôme Feret (with Jean Krivine), Rule-based Modelling, 24h, M1. Interdisciplinary Approaches to Life Science (AIV), Master Program, Université Paris-Descartes, France.

Doctorat:

- Jérôme Feret, "Abstract Interpretation of Models of Intracellular Signalling Pathways", 3h, CNRS summer school "Formal modeling of Biological Regulation Networks", June 2019, Île de Porquerolles, France.

10.2.2. Supervision

- PhD defended: Andreea Beica, Abstraction of Biochemical Reaction Networks, started in 2015 and supervised by Vincent Danos
- PhD defended: Hugo Illous, Relational Shape Abstraction Based on Separation Logic, started in 2015 and supervised by Xavier Rival and Matthieu Lemerre (CEA)
- PhD in progress
- PhD in progress: Marc Chevalier, Static analysis of Security Properties in Critical Embedded Software, started in 2017 and supervised by Jérôme Feret
- PhD in progress: Albin Salazar, Formal derivation of discrete models with separated time-scales, started in 2019 and supervised by Jérôme Feret
- PhD in progress: Olivier Nicole, Verification of micro-kernels, started in 2018 and supervised by Xavier Rival and Matthieu Lemerre (CEA)

10.2.3. Juries

- Jérôme Feret served as a member for the Jury of the PhD of Andreea Beica (Defense on the 12th of June 2019)
- Xavier Rival served as a member for the Habilitation Thesis Committee of Chien Chung Huang (Defense on the 28th of January 2019)
- Xavier Rival is serving as a member of the Review Committee for Vincenzo Arceri at University of Verona (to be defended in early 2020).
- Caterina Urban served as a member of the Jury of the PhD of Emilio Incerto at the Gran Sasso Science Institute in Italy (defense on the 5th of April 2019).
- Cezara Drăgoi servered as a member for the Jury of the PhD of Hugo Illous, Relational Shape Abstraction Based on Separation Logic (defence on the 16th avril 2019).

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Cezara Drăgoi and Xavier Rival are elected members of the Inria Commision of Evaluation
- Jérôme Feret is a member of the jury of the SIF - Gilles Kahn PhD Award.
- Xavier Rival is member of the "Bureau du comité des projets" since October 2018.
- Xavier Rival is Chair of the Hiring Committee for Inria researchers at the center of Paris (CRCN) for 2019.
- Cezara Drăgoi served in the jury for part-time positions at LiX, January 2019.
- Cezara Drăgoi served in the Inria jury for CES - delegations and Phd scholarships in 2019.

10.3.2. Articles and contents

- Xavier Rival has been working with Kwangkeun Yi on the writing of a book that should serve as an introduction to the field of static analysis, for students and engineers, and this book is expected to be released by MIT Press in January 2020 [16].

10.3.3. Creation of media or tools for science outreach

Xavier Rival has given a talk as part of the "Mon équipe en 180 secondes" series at Inria Paris.

ARIC Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

- Damien Stehlé organized a Winter School on the mathematical foundations of public-key cryptography, in Aussois (France), from March 17 to March 22.
- Bruno Salvy was a co-chair of AofA'2019 (Analysis of Algorithms), in Luminy, France.

10.1.2. Scientific Events: Selection

- Elena Kirshanova was in the program committee of Asiacrypt 2019.
- Benoît Libert was in the program committees of PKC 2019 and PKC 2020.
- Nathalie Revol is in the steering committee of the Arith conference series. She was in the program committee of Arith'26, of Correctness 2019 (workshop of SuperComputing) and of PPAM (Parallel Processing and Applied Mathematics) 2019.
- Bruno Salvy is in the steering committee of AofA. He was in the program committee for FPSAC 2019 and in the scientific committee of OPSFA 2019. He is in the program committee for AofA 2020.
- Damien Stehlé is in the steering committee of the PQCrypto conference series. He was in the program committee PQCrypto 2019 and is in the program committee of PQCrypto 2020. He was in the program committee of CRYPTO 2019.
- Gilles Villard was in the program committee of ISSAC 2019.

10.1.3. Journal

- Benoît Libert was a member of the editorial board of IET Information Security until July 31, 2019.
- Jean-Michel Muller is associate editor in chief of the IEEE Transactions on Emerging Topics in Computing.
- Nathalie Revol is a member of the editorial board of Reliable Computing.
- Bruno Salvy and Gilles Villard are members of the editorial board of Journal of Symbolic Computation.
- Bruno Salvy is a member of the editorial board of the collection *Text and Monographs in Symbolic Computation* (Springer) and of the journal *Annals of Combinatorics*.
- Damien Stehlé is a member of the editorial board of Journal of Cryptology.

10.1.4. Invited Talks

- Claude-Pierre Jeannerod gave an invited talk at the workshop *Structured Matrix Days* (Limoges, May 23–24, 2019).
- Benoît Libert gave an invited presentation during the "Workshop on Modern Trends in Cryptography" organized at Nanyang Technological University (Singapore) on June 13-14, 2019.
- Damien Stehlé gave lectures during the "Euclidean lattices: theory and applications" Summer school that was held in Kaliningrad (Russia), from July 15 to July 19.

10.1.5. Leadership within the Scientific Community

- Guillaume Hanrot was a member of selection committees for professors at Université de Lorraine (in CS) and at Université de Nouvelle-Calédonie (in Mathematics). He was also in the hiring committee of the computer science department of École polytechnique. He is a member of the working group on the revision of the CS curriculum in *Classes préparatoires aux grandes écoles*.

- Claude-Pierre Jeannerod is a member of the scientific committee of JNCF (Journées Nationales de Calcul Formel). He is also a member of the recruitment committee for postdocs and sabbaticals at Inria Grenoble–Rhône-Alpes.

- Jean-Michel Muller is co-head of the GDR Informatique Mathématique of the CNRS. He is also a member of the Scientific Council of CERFACS (Toulouse).

- Alain Passelègue is a member of the steering committee of the *Groupe de Travail Codage et Cryptographie* (GT-C2) of the GDR-IM.

- Nathalie Revol is a member of the steering committee of GDR Calcul; she was a member of the hiring committee (Comité de Sélection) for 2 positions at U. Nantes.

- Bruno Salvy is a member of the scientific councils of the CIRM, Luminy and of the GDR Informatique Mathématique of the CNRS.

10.1.6. Scientific Expertise

- Nathalie Revol has been an expert for the European H2020 program.

10.1.7. Research Administration

- Jean-Michel Muller is a member of the *Commission Administrative Paritaire* (CAP) *Directeurs de Recherches* of CNRS.

- Gilles Villard is a member of the Section 6 of the *Comité national de la recherche scientifique*.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: Guillaume Hanrot, Computer algebra, 10h, ENS de Lyon, France

- Master: Guillaume Hanrot, Cryptanalysis, 15h, ENS de Lyon, France

- Master: Claude-Pierre Jeannerod, Computer Algebra, 18h, M2Pro ISFA (Institut de Science Financière et d'Assurances), Université Claude Bernard Lyon 1, France

- Master (1&2): Fabien Laguillaumie, Cryptography, 160 h, ISFA, UCBL, France

- Master: Benoît Libert, Advanced Topics in Cryptography, 15h, ENS de Lyon, France

- Master: Nicolas Louvet, Compilers, 22h, M1, UCB Lyon 1, France

- Master: Alain Passelègue, Computer Algebra, 10h, M1, ENS de Lyon, France

- Master: Alain Passelègue, Advanced Topics in Cryptography, 30h, M2, ENS de Lyon, France

- Master: Nathalie Revol, Numerical Algorithms and Reliability, 12h, M2Pro ISFA (Institut de Science Financière et d'Assurances), Université Claude Bernard Lyon 1, France

- Master: Bruno Salvy, Computer Algebra, 6h, ENS de Lyon, France

- Master: Bruno Salvy, Logic and Complexity, 32h, École polytechnique, France

- Master: Damien Stehlé, Cryptanalysis, 15h, ENS de Lyon, France

- Master : Gilles Villard, Computer Algebra, 8h, ENS de Lyon, France

- Bachelor: Guillaume Hanrot, Calculability and complexity, 32h, ENS de Lyon, France

- Bachelor: Nicolas Louvet, Computer Architecture, 27h, L1, UCB Lyon 1, France

- Bachelor: Nicolas Louvet, Operating Systems, 50h, L2, UCB Lyon 1, France

- Bachelor: Nicolas Louvet, Data Structures and Algorithms, 24h, L2, UCB Lyon 1, France

- Bachelor: Nicolas Louvet, Data Structures and Algorithms, 40h, L3, UCB Lyon 1, France
- Bachelor: Nicolas Louvet, Formal Languages, 15h, L3, UCB Lyon 1, France
- Bachelor: Nicolas Louvet, Classical Logic, 15h, L3, UCB Lyon 1, France
- Bachelor: Bruno Salvy, Design and Analysis of Algorithms, 20h, École polytechnique, France

10.2.2. Supervision

- PhD: Florent Bréhard, Certified Numerics in Function Spaces: Polynomial Approximations Meet Computer Algebra and Formal Proof, ENS de Lyon, July 12, Nicolas Brisebarre (co-supervision with Mioara Joldes, CNRS LAAS, and Damien Pous, LIP)
- PhD: Alice Pellet-Mary, On ideal lattices and the GGH13 multilinear map, ENS de Lyon, October 16, Damien Stehlé
- PhD: Chen Qian, Lossy Trapdoor Primitives, Zero-Knowledge Proofs and Applications, IRISA Rennes, October 4, Benoît Libert (co-supervision with Pierre-Alain Fouque, IRISA)
- PhD in progress: Miruna Rosca, The middle-product learning with errors problem, January 2017, Damien Stehlé
- PhD in progress: Huyen Nguyen, Cryptographic aspects of orthogonal lattices, September 2018, Damien Stehlé
- PhD in progress: Radu Titiu, Advanced cryptographic primitives based on standard assumptions, January 2017, Benoît Libert
- PhD in progress: Adel Hamdi, Functional Encryption, December 2017, Fabien Laguillaumie (co-supervised by Sébastien Canard, Orange)
- PhD in progress: Ida Tucker, Advanced cryptographic primitives from homomorphic encryption, October 2017, Fabien Laguillaumie (co-direction with Guilhem Castagnos, Université de Bordeaux)

10.2.3. Juries

- Damien Stehlé was a jury member for the PhD defences of Ilia Iliashenko (K.U. Leuven, Belgium) and Joost Rijneveld (Radboud U., the Netherlands) and for the habilitation defence of Omar Fawzi (ENS de Lyon). He was a reviewer and jury member of the PhD of Thomas Debris-Alazard (Sorbonne U.) and for the habilitation of Guilhem Castagnos (U. Bordeaux).
- Benoît Libert was a reviewer for the PhD theses of Romain Gay (ENS Paris), Jérémy Chotard (Univ. of Limoges). He was a PhD examiner for the thesis of Andrea Cerulli (University College London, United Kingdom). He also chaired the PhD committee of Anca Nitulescu (ENS Paris).
- Fabien Laguillaumie was reviewer and jury member of the PhD of Pauline Bert (Université de Rennes) and of the HDR of Olivier Blazy (Université de Limoges)
- Jean-Michel Muller was reviewer and jury member of the PhD of Clothilde Jeangoudoux (Sorbonne University, Paris)
- Gilles Villard was reviewer for the PhD thesis of Robin Larrieu (Université Paris-Saclay); examiner for the habilitation of Pascal Giorgi (Université de Montpellier) and the PhD thesis of Matías Bender (Sorbonne Université).

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Nathalie Revol was in the scientific committee for the Journées Scientifiques Inria (Lyon, 5-7 June 2019).
- Nathalie Revol was a member of the editorial committee of interstices; she is the scientific editor of this Web magazine since September 2019.
- Nathalie Revol belonged to the steering committee of MMI (Maison des Mathématiques et de l'Informatique) until July 2019; she is now a member of its prospective committee.
- Bruno Salvy is "référent chercheur" for the Inria Grenoble Center.

10.3.2. Articles and contents

Nathalie Revol belonged to the working group that elaborated the "7 families of computer science" playcards, launched in February 2019.

10.3.3. Education

- Nathalie Revol taught "Dissemination of Scientific Knowledge", 10h, to the 4th year students (between Master and PhD) of ENS de Lyon, France.

- Nathalie Revol works with DANE (Délégation Académique au Numérique dans l'Éducation) of Rectorat de Lyon towards educating primary school teachers, by educating educators (e-RUN); she is a member of the Conseil Scientifique du Numérique.

- Nathalie Revol presented activities for teaching computer science at every school level, and in particular activities led by Inria, for a Taiwanese delegation (Grenoble, October 2019).

10.3.4. Interventions

- Nathalie Revol spent 2 days at école Guilloux, with 50 pupils aged 10 (level: CM2), to teach computer science without any computer (so-called "unplugged computer science"): data, algorithms, networks.

- For high-school pupils ($\simeq 150$ pupils): as an incentive, especially for girls, to choose scientific careers, Nathalie Revol gave talks at Mondial des Métiers (in February 2019), collège Jean Zay (Brignais, March 2019) and Girls Can Code (Lyon, August 2019). With Jérôme Germoni and Natacha Portier, she organized a day *Filles & Info* in November 2019, gathering about 70 high-school girls of 1e and Terminale.

- For a larger audience: she took part to Pop Science, doing magic tricks in the street at La Duchère, Lyon, May 2019; with Florent Masséglia, she introduced 5 important figures of computer science, chosen among the personalities of the "7 families of computer science" playcard, for L'Esprit Sorcier, for la Fête de la Science, Paris, October 2019, cf https://www.youtube.com/watch?v=ypnQe91Pztc

- Nathalie Revol took part to a day of teaching unplugged computer science for whoever was interested, at La Gaîté Lyrique, Paris, June 2019.

10.3.5. Creation of media or tools for science outreach

Nathalie Revol belongs to the working group "Informatique Sans Ordinateur", which creates unplugged activities to teach computer science; this group meets twice a year, usually in Lyon.

AROMATH Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. General Chair, Scientific Chair

Laurent Busé organized a CIMPA school at Joao Pessoa, Brazil, November 4-13, on the topic "Syzygies: from theory to applications". Six courses delivered by international experts of this topic were scheduled during this school that hosted about 40 international PhD students and young researchers. For more details, see http://www-sop.inria.fr/members/Laurent.Buse/CimpaSchoolBrazil/.

8.1.1.2. Member of the Organizing Committees

Laurent Busé co-organized with C. D'Andrea and Y. Cid Ruiz a mini-symposium on «Syzygies and Applications to Geometry » at the SIAM Conference on Applied Algebraic Geometry, Bern, Switzerland, July 9-13, 2019.

Angelos Mantzaflaris and Bernard Mourrain co-organized with E. Tsigaridas a mini-symposium on "Symbolic-numeric methods for non-linear equations: Algorithms and applications" at the SIAM Conference on Applied Algebraic Geometry, Bern, Switzerland, July 9-13, 2019.

8.1.2. Scientific Events: Selection

8.1.2.1. Member of the Conference Program Committees

Laurent Busé was a member of the international program committee of the 2019 Symposium on Physical and Solid Modeling (SPM), Vancouver, Canada, June 17-19. He was also a member of the scientific committee fro the conference "Ideals, Varieties, Applications" celebrating the influence of David Cox, Amherst, USA, June 10-14.

Angelos Mantzaflaris served in the PC of the 2019 Solid and Physical Modeling (SPM), https://project.inria.fr/spm2019/.

8.1.2.2. Reviewer

Laurent Busé reviewed for *Symposium on Physical and Solid Modeling conference*, *SIGGRAPH conference*, *ISSAC conference* and *MEGA conference*.

Ioannis Emiris reviewed for the *Symposium of Computational Geometry*, *ICALP: Intern. Conf. Automata, Logic & Programming* and *MEGA: Méthodes Effectives en Géométrie Algébrique*.

Angelos Mantzaflaris reviewed for the *Symposium on Physical and Solid Modeling*.

Bernard Mourrain reviewed for *Symposium on Physical and Solid Modeling conference*, *ISSAC conference* and *MEGA conference*.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

Ioannis Emiris is editorial board member of *J. Symbolic Computation (Elsevier)* and *Mathematics for Computer Science (Springer)*.

Evelyne Hubert is on the editorial board of Foundation of Computational Mathematics (since 2017) and the Journal of Symbolic Computation (since 2007).

Bernard Mourrain is associate editor of the Journal of Symbolic Computation (since 2007) and of the SIAM Journal on Applied Algebra and Geometry (since 2016).

8.1.3.2. Reviewer - Reviewing Activities

Laurent Busé reviewed for *Graphical Models journal*, *Advances in Applied Mathematics journal*, *SIAM SIAGA journal*, *International Mathematics Research Notices*, *Journal of Algebra*, *Applicable Algebra in Engineering, Communication and Computing journal*, *Computer-Aided Design journal*, *Computer Aided Geometric Design journal*, *Journal of Computer Science and Technology*, *AMS Mathematics of Computations journal*, *Israel Journal of Mathematics* and *Journal of Symbolic Computation*.

Evelyne Hubert reviewed for Journal für die reine und angewandte Mathematik, Proceedings of the American Mathematical Society, Advances in Applied Mathematics, Foundation of Computational Mathematics, SIAM Journal on Applied Algebra and Geometry, Journal of Symbolic Computation, and Computer Aided Geometric Design.

Bernard Mourrain reviewed for *Annales Henri Lebesgue*, *Collectanea Mathematica journalComputer-Aided Design journal*, *Computer Aided Geometric Design journal*, *Journal of Global Optimization*, *Journal of Symbolic Computation*, and *Mathematics of Computations journal*,

Angelos Mantzaflaris reviewed for Computer Methods in Applied Mechanics and Engineering, Computer Aided Geometric Design, Computers & Mathematics with Applications, and Journal of Symbolic Computation.

8.1.4. Invited Talks

Ahmed Blidia was an invited speaker in the minisymposium *Multivariate spline approximation and algebraic geometry* at SIAM Applied Algebraic Geometry meeting, Bern, Switzerland in June 2019.

Laurent Busé was invited to give two lectures at the "27th National School on Algebra: Graded modules over polynomial rings with applications to free divisors", Bucarest, Romania, May 19-25; he was invited to give a plenary talk at the conference "Ideals, Varieties, Applications", in honor of David Cox, Amherst, USA, June 10-14; he gave an invited course during the school "TIME2019: Curves and Surfaces, a History of Shapes", Levico Terme, Italy, Septembre 2-6.

Ioannis Emiris was an invited speaker at KAUST, Visual computing center, Saudi Arabia in February 2019, and SIAM Applied Algebraic Geometry meeting, Bern, Switzerland in June 2019.

Alvaro Fuentes Suarez gave a seminar talk in the MFX team at Inria NGE in February 2019.

Evelyne Hubert presented a series of lectures at the national conference *Equations Fonctionnelles et Interactions* (Anglet). She was invited to give talks at the A^3 - *Arctic Applied Algebra* conference (Tromsø, Norway, April 2019) and the conference *A celebration of Symmetry and Comptutation* (Canterburry, UK). She delivered seminar talks at the University of the Arctic (Tromsø, Norway) and at the Isaac Newton Institute (Cambridge, UK).

Angelos Mantzaflaris gave an invited talk at the 4th Workshop of the ERC project CHANGE, Centro Congressi dell'Annunziata, Sestri Levante, Italy (November 2019) and at the Schloss Dagstuhl – Leibniz Center for Informatics seminar on Interactive Design and Simulation, Germany (December 2019). He also delivered a mini-symposium presentation at the annual conference on Isogeometric Analysis (IGA 2019, Munich, Germany, September 2019).

Both Angelos Mantzaflaris and Bernard Mourrain were invited at the meeting on "Isogeometric Splines: Theory and Applications" of the Banff International Research Station for Mathematical Innovation and Discovery (BIRS, February 2019), at the Oberwolfach Mini-Workshop on Mathematical Foundations of Isogeometric Analysis (July 2019), and at the Algebraic Spline Geometry Meeting in Swansea, UK (August 2019).

Bernard Mourrain was invited to give a talk at the conference A^3 - *Arctic Applied Algebra* (Tromsø, Norway, April 1-4); an invited speaker of the conference MEGA (Madrid, Spain, June), to talk at the minisymposium *The algebra and geometry of tensors* of SIAM Applied Algebraic Geometry meeting, (Bern, Switzerland, June 2019), at the conference *Multivariate Approximation and Interpolation with Applications* (Vienna, Austria, Aug. 26-30), at the Italian Mathematical Union conference (Pavia, Sept. 2-5).

He was also invited to give two courses on splines at the University of Montpellier, (October 23-24, 2019).

Erick Rodriguez Bazan was an invited speaker in the minisymposium *Symmetry in algorithmic questions of real algebraic geometry* at SIAM Applied Algebraic Geometry meeting, Bern, Switzerland in June 2019.

Fatmanur Yildirim was an invited speaker in the minisymposium *Syzygies and applications to geometry* at SIAM Applied Algebraic Geometry meeting, Bern, Switzerland in June 2019.

8.1.5. Leadership within the Scientific Community

Ioannis Emiris is member of the Scientific Board of Hellenic Foundation for Research & Innovation (http://www.elidek.gr), representing Informatics and Mathematics.

Bernard Mourain has been elected vice chair of the SIAM Algebraic Geometry group.

8.1.6. Scientific Expertise

Evelyne Hubert was on the hiring committee for Junior Research Scientists at Inria NGE.

8.1.7. Research Administration

Bernard Mourrain is member of the BCEP (Bureau du Comité des Equipes Projet) of the center Inria- Sophia Antipolis.

Evelyne Hubert was a member of Inria Evaluation committee (until June 2019).

Laurent Busé is a member of the admnistrative and scientific committee of the labex AMIES. He is also member of the CDT at Inria Sophia-Antipolis and the CPRH of the Mathematics Laboratory Jean-Alexandre Dieudonné of the University of Nice.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- Licence : Ioannis Emiris, Discrete Math, 52 h (L1), NKU Athens
- Licence : Ioannis Emiris, Software development, 26 h (L3), NKU Athens
- Master : Ioannis Emiris, Geometric data science, 52 h (M2), NKU Athens
- Master : Ioannis Emiris, Structural bioinformatics, 39 h (M2), NKU Athens
- Master : Laurent Busé, Geometric Modeling, 18h (M2), engineer school of the University of Nice Sophia-Antipolis (EPU).
- Undergraduate: Angelos Mantzaflaris "Fondements mathématiques 2 (L1 - TD Partie analyse), University of Côte d'Azur, spring semester 2019.

8.2.2. Supervision

- PhD in progress: Lorenzo Baldi, Structure of moment problems and applications to polynomial optimization. POEMA Marie Skłodowska-Curie ITN, started in October 2019, supervised by Bernard Mourrain.
- PhD in progress: Ahmed Blidia, New geometric models for the design and computation of complex shapes. ARCADES Marie Skłodowska-Curie ITN, started in September 2016, supervised by Bernard Mourrain.
- PhD in progress: Rima Khouja, Tensor decomposition, best approximations, algorithms and applications. Cotutelle Univ. Liban, started in November 2018, cosupervised by Houssam Khalil and Bernard Mourrain.
- PhD: Ioannis Psarros, Proximity problems for high-dimensional data. Greek scholarships foundation. Defended in Jun. 2019, NKUA, supervised by Ioannis Emiris.
- PhD in progress: Evangelos Bartzos, Algebraic elimination and Distance graphs. ARCADES Marie Skłodowska-Curie ITN, started in June 2016, NKUA, supervised by Ioannis Emiris.

- PhD in progress: Clément Laroche, Algebraic representations of geometric objects. ARCADES Marie Skłodowska-Curie ITN, started in Nov. 2016, NKUA, supervised by Ioannis Emiris.

- PhD in progress: Apostolos Chalkis, Sampling in high-dimensional convex regions, Google Summer of Code, started in June 2018, NKUA, supervised by Ioannis Emiris.

- PhD in progress: Emmanouil Christoforou, Geometric approximation algorithms for clustering, Structural Bioinformatics national infrastructure "Inspire", started in Jan. 2018, NKUA, supervised by Ioannis Emiris.

- PhD in progress: Tobias Metzlaff. Multivariate orthogonal polynomials and applications to global optimization. POEMA Marie Skłodowska-Curie ITN, started in December 2019, supervised by Evelyne Hubert.

- PhD in progress: Erick Rodriguez Bazan, Symmetry in Algebraic Computations. Inria. Started in November 2017, supervised by Evelyne Hubert.

- PhD : Alvaro Fuentes Suarez defended September 2019 [1]. Modeling shapes with skeletons: scaffolds & anisotropic convolution. ARCADES Marie Skłodowska-Curie ITN, started October 2016 and supervised by Evelyne Hubert.

- PhD in progress: Thomas Laporte, Towards a 4D model of the respiratory system. Fellowship from ED SFA/UCA. Started on October 2019, co-supervised by Benjamin Mouroy (UCA) and Angelos Mantzaflaris.

- PhD in progress: Riccardo Di Dio, Building a diagnosis tool to detect broncho-constrictions, BoostUrCAreer Marie Skłodowska-Curie COFUND fellowship. Started on November 2019, co-supervised by Benjamin Mouroy (UCA) and Angelos Mantzaflaris.

8.2.3. Juries

Bernard Mourrain was a member of the PhD committee of Matias R. Bender *Algorithms for sparse polynomial systems : Gröbner basis and resultants*, Sorbonne Université, Paris, June 3rd; a reviewer and member of the committee of the HDR of Frédéric Holweck entitled *On the projective geometry of entanglement and contextuality*, University Bourgogne Franche-Comté, Belfort, France, September 11th.

Evelyne Hubert was a reviewer for the Habilitation thesis of Georg Regensbuger, Johannes Kepler University (Austria): *Algebraic and algorithmic Approached to Analysis: Integro-differential equations, positive steady states, and wavelets*

Laurent Busé was a reviewer and member of the committee the PhD thesis of Navid Nemati, *Syzygies: Algebra, Combinatorics and Geometry*, Sorbonne Université, Paris, May 28; he was also a member of the PhD committee of Matias R. Bender, *Algorithms for sparse polynomial systems : Gröbner basis and resultants*, Sorbonne Université, Paris, June 3rd.

8.3. Popularization

8.3.1. Interventions

Ioannis Emiris was an invited speaker at "From Open Access to Science", Athens, May 2019. and "30 years celebration of ATHENA Research Center", Athens, November 2019.

<p style="text-align:center;color:red;">**CAIRN Project-Team**</p>

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. General Chair, Scientific Chair

- D. Chillet was the General Co-Chair of HiPEAC RAPIDO'19 Workshop.

8.1.1.2. Member of the Organizing Committees

- E. Casseau is a member of DASIP Steering Committee, Conference on Design and Architectures for Signal and Image Processing.

8.1.2. Scientific Events: Selection

8.1.2.1. Chair of Conference Program Committees

- O. Sentieys is Co-Chair of the D8 Track on Architectural and Microarchitectural Design at IEEE/ACM DATE since 2018.
- O. Sentieys is a member of the committee for delivering the Best Paper Award at IEEE/ACM DATE 2020.
- O. Sentieys served as a committee member in the IEEE EDAA Outstanding Dissertations Award (ODA).

8.1.2.2. Member of the Conference Program Committees

- D. Chillet was member of the technical program committee of HiPEAC RAPIDO, HiPEAC WRC, MCSoC, DCIS, ComPAS, DASIP, LP-EMS, ARC.
- S. Derrien was a member of technical program committee of IEEE FPL'19, IEEE FPT'19, IEEE ASAP'19 and ARC'19.
- A. Kritikakou was a member of technical program committee of IEEE RTAS'20, ECRTS'19, SAMOS'19, DATE'20.
- O. Sentieys was a member of technical program committee of IEEE/ACM DATE, IEEE FPL, ACM ENSSys, ACM SBCCI, IEEE ReConFig.
- T. Yuki was a member of technical program committee of CGO '19, SC '19, TAPAS '19, CC '20, IMPACT '20, and was a member of external review committee of PACT '19.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

- D. Chillet is member of the Editor Board of Journal of Real-Time Image Processing (JRTIP).
- O. Sentieys is member of the editorial board of Journal of Low Power Electronics.

8.1.4. Invited Talks

- O. Sentieys gave an invited talk at FETCH (École d'hiver Francophone sur les Technologies de Conception des Systèmes embarqués Hétérogènes), Louvain-la-Neuve, Belgique, January 2019 on "Approximating Deep Learning Accelerators".
- O. Sentieys gave an invited talk at ARCHI Spring School, Lorient, France, May 2019 on "Design of VLSI Integrated Circuits - A (very) deep dive into computing chips".

- O. Sentieys gave a Keynote at the IEEE International Nanodevices and Computing (INC) - IEEE International Conference on Rebooting Computing (ICRC), Grenoble, France, April 2019 on "Playing with numbers for Energy Efficiency: Introduction to Approximate Computing" [21].

- O. Sentieys gave a tutorial at the 22nd IEEE/ACM Design, Automation and Test in Europe (DATE), March 2019 on "A Comprehensive Analysis of Approximate Computing Techniques: From Component- to Application-Level" [47].

- D.Chillet gave a talk during GDR SoC2 and RO topic day, in november 2019 on "Mathematics model for wavelength allocation in the context of Optical NoC".

- D. Chillet gave an invited talk at FETCH (École d'hiver Francophone sur les Technologies de Conception des Systèmes embarqués Hétérogènes), Louvain-la-Neuve, Belgique, January 2019 on "Power management for communications on Optical NoC".

8.1.5. Leadership within the Scientific Community

- E. Casseau is a member of the French National University Council in Signal Processing and Electronics (CNU - Conseil National des Universites, 61ème section) since 2018.

- D.Chillet is a member of the French National University Council in Signal Processing and Electronics (CNU - Conseil National des Universites, 61ème section) since 2019.

- D. Chillet is member of the Board of Directors of Gretsi Association.

- D. Chillet is co-animator of the "Connected Objects" topic of GDR SoC^2.

- F. Charot and O. Sentieys are members of the steering committee of a CNRS Spring School for graduate students on embedded systems architectures and associated design tools (ARCHI).

- O. Sentieys is a member of the steering committee of GDR SoC^2.

- O. Sentieys is an elected member of the Evaluation Committee (CE) of Inria.

8.1.6. Scientific Expertise

- O. Sentieys served as an expert for Fund for Scientific Research – FNRS, Belgium.

- D.Chillet served as an expert for the call CAPES-COFECUB 2020.

- D.Chillet served as an expert for German Research Foundation.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching Responsibilities

- E. Casseau is in charge of the Department of "Digital Systems" at ENSSAT Engineering Graduate School.

- D. Chillet was the responsible of the ICT Master of University of Science and Technology of Hanoi.

- C. Killian was the responsible of the second year of the "Instrumentation" DUT at IUT, Lannion until July 2019.

- O. Sentieys is responsible of the "Embedded Systems" major of the SISEA Master by Research.

- C. Wolinski was the Director of ESIR until May 2019.

ENSSAT stands for *"École Nationale Supérieure des Sciences Appliquées et de Technologie"* and is an *"École d'Ingénieurs"* of the University of Rennes 1, located in Lannion. ISTIC is the Electrical Engineering and Computer Science Department of the University of Rennes 1. ESIR stands for *"École supérieure d'ingénieur de Rennes"* and is an *"École d'Ingénieurs"* of the University of Rennes 1, located in Rennes.

8.2.2. Teaching

E. Casseau: signal processing, 21h, ENSSAT (L3)

E. Casseau: low power design, 6h, ENSSAT (M1)

E. Casseau: real time design methodology, 57h, ENSSAT (M1)

E. Casseau: computer architecture, 24h, ENSSAT (M1)

E. Casseau: VHDL design, 42h, ENSSAT (M1)

E. Casseau: SoC and high-level synthesis, 33h, Master by Research (SISEA) and ENSSAT (M2)

S. Derrien, optimizing and parallelising compilers, 14h, Master of Computer Science, ISTIC(M2)

S. Derrien, advanced processor architectures, 8h, Master of Computer Science, ISTIC(M2)

S. Derrien, high level synthesis, 20h, Master of Computer Science, ISTIC(M2)

S. Derrien, computer science research projects, 10h, Master of Computer Science, ISTIC(M1)

S. Derrien: introduction to operating systems, 8h, ISTIC (M1)

S. Derrien, principles of digital design, 20h, Bachelor of EE/CS, ISTIC(L2)

S. Derrien, computer architecture, 48h, Bachelor of Computer Science, ISTIC(L3)

S.I. Filip, Operating Systems, 24h, Master of Mechatronics, ENS RENNES (M2)

F. Charot: computer architecture, 16h, ESIR (L3)

F. Charot: Computer architecture, 58h, ISTIC (L3)

D. Chillet: embedded processor architecture, 20h, ENSSAT (M1)

D. Chillet: multimedia processor architectures, 24h, ENSSAT (M2)

D. Chillet: advanced processor architectures, 20h, ENSSAT (M2)

D. Chillet: micro-controller, 64h, ENSSAT (L3)

D. Chillet: low-power digital CMOS circuits, 6h, Telecom Bretagne (M2)

D. Chillet: low-power digital CMOS circuits, 4h, UBO (M2)

C. Killian: digital electronics, 52h, IUT Lannion (L1)

C. Killian: automated measurements, 44h, IUT Lannion (L2)

A. Kritikakou: computer architecture 1, 32h, ISTIC (L3)

A. Kritikakou: computer architecture 2, 44h, ISTIC (L3)

A. Kritikakou: C and unix programming languages, 102h, ISTIC (L3)

A. Kritikakou: operating systems, 60h, ISTIC (L3)

O. Sentieys: VLSI integrated circuit design, 24h, ENSSAT (M1)

O. Sentieys: VHDL and logic synthesis, 18h, ENSSAT (M1)

C. Wolinski: computer architectures, 92h, ESIR (L3)

C. Wolinski: design of embedded systems, 48h, ESIR (M1)

C. Wolinski: signal, image, architecture, 26h, ESIR (M1)

C. Wolinski: programmable architectures, 10h, ESIR (M1)

C. Wolinski: component and system synthesis, 10h, Master by Research (ISTIC) (M2)

8.2.3. Supervision

PhD: Audrey Lucas, Software support resistant to passive and active attacks for asymmetric cryptography on (very) small computation cores, Dec. 2019, A. Tisserand.

PhD: Genevieve Ndour, Approximate computing for high energy-efficiency in internet-of-things applications, Jul. 2019, A. Tisserand, A. Molnos (CEA LETI).

PhD in progress: Thibault Allenet, Low-Cost Neural Network Algorithms and Implementations for Temporal Sequence Processing, March 2019, O. Sentieys, O. Bichler (CEA LIST).

PhD in progress: Minh Thanh Cong, Hardware Accelerated Simulation of Heterogeneous Multicore Platforms, May 2017, F. Charot, S. Derrien.

PhD in progress: Minyu Cui, Energy-Quality-Time Fault Tolerant Task Mapping on Multicore Architectures, Oct. 2018, E. Casseau, A. Kritikakou.

PhD in progress: Petr Dobias, Energy-Quality-Time Fault Tolerant Task Mapping on Multicore Architectures, Oct. 2017, E. Casseau.

PhD in progress: Corentin Ferry, Compiler support for Runtime data compression for FPGA accelerators, Sep. 2019, S. Derrien, T. Yuki and S. Rajopadhye (co-tutelle between Université de Rennes 1 and Colorado State University).

PhD in progress: Adrien Gaonac'h, Test de robustesse des systèmes embarqués par perturbation contrôlée en simulation à partir de plateformes virtuelles, Oct. 2019, D. Chillet, Yves Lhuillier (CEA LIST), Youri Helen (DGA).

PhD in progress: Mael Gueguen, Improving the performance and energy efficiency of complex heterogeneous manycore architectures with on-chip data mining, Nov. 2016, O. Sentieys, A. Termier.

PhD in progress: Van-Phu Ha, Application-Level Tuning of Accuracy, Nov. 2017, T. Yuki, O. Sentieys.

PhD in progress: Jaechul Lee, Energy-Performance Trade-Off in Optical Network-on-Chip, Dec. 2018, D. Chillet, C. Killian.

PhD in progress: Thibaut Marty, Compiler support for speculative custom hardware accelerators, Sep. 2017, T. Yuki, S. Derrien.

PhD in progress: Romain Mercier, Fault Tolerant Network on Chip for Deep Learning Algorithms, Oct. 2018, D. Chillet, C. Killian, A. Kritikakou.

PhD in progress: Louis Narmour, Revisiting memory allocation in tyeh polyhedral model, Sep. 2019, S. Derrien, T. Yuki and S. Rajopadhye (co-tutelle between Université de Rennes 1 and Colorado State University).

PhD in progress: Joel Ortiz Sosa, Study and design of a digital baseband transceiver for wireless network-on-chip architectures, Nov. 2016, O. Sentieys, C. Roland (Lab-STICC).

PhD in progress: Davide Pala, Non-Volatile Processors for Intermittently-Powered Computing Systems, Jan. 2018, O. Sentieys, I. Miro-Panades (CEA LETI).

PhD in progress: Joseph Paturel, Design-space exploration of fault-tolerant multicores, Sep. 2018, O. Sentieys, A. Kritikakou.

PhD in progress: Nicolas Roux, Sensor-aided Non-Intrusive Appliance Load Monitoring: Detecting Activity of Devices through Low-Cost Wireless Sensors, Oct. 2016, O. Sentieys, B. Vrigneau (IRISA/GRANIT).

8.3. Popularization

8.3.1. Articles and contents

O. Sentieys contributed to the Inria white book on scientific reviews and challenges in cybersecurity https://files.inria.fr/dircom/extranet/LB_cybersecurity_WEB.pdf.

8.3.2. Interventions

Members of the team participated in the national science festival *(Fête de la Science)* in Lannion, October, with demonstrations on wireless sensor networks, body sensor network, cryptology and digital circuit design.

CAMBIUM Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Chair of Conference Program Committees

François Pottier was the program chair of the International Conference on Functional Programming (ICFP 2019) which took place in Berlin, Germany in August 2019.

9.1.1.2. Member of the Conference Program Committees

Xavier Leroy was on the program committee of PERR 2019, the 3rd Workshop on Program Equivalence and Relational Reasoning, part of the ETAPS 2019 joint conferences.

Xavier Leroy was on the program committee of FOSSACS 2020, the 23rd International Conference on Foundations of Software Science and Computation Structures, part of the ETAPS 2020 joint conferences.

Didier Rémy was a member of the program committee for FLOPS 2020, the 15th International Symposium on Functional and Logic Programming.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

Xavier Leroy is area editor for Journal of the ACM, in charge of the Programming Languages area. He is a member of the editorial board of Journal of Automated Reasoning.

François Pottier is a member of the ICFP steering committee and a member of the editorial boards of the Journal of Functional Programming and the Proceedings of the ACM on Programming Languages.

Until September 2019, Didier Rémy was a member of the ML Family workshop steering committee.

9.1.3. Scientific Expertise

Didier Rémy co-authored the Inria white book on Cybersecurity [17], [18] and a companion document of *Recommendations for Inria's Management*.

9.1.4. Research Administration

Damien Doligez chairs the Caml Consortium.

François Pottier is a member of Inria Paris' *Commission de Développement Technologique* and the president of Inria Paris' *Comité de Suivi Doctoral*.

Didier Rémy is Inria's delegate in the MPRI's pedagogical and management board of the *Master Parisien de Recherche en Informatique* (MPRI).

Didier Rémy set up the Inria-Nomadic Labs partnership and is currently the co-chair of its steering committee.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master (M2): "Proofs of Programs", Jean-Marie Madiot, 18 HETD, MPRI, Université Paris Diderot, France.

Master (M2): "Programming shared memory multicore machines", Luc Maranget, 18 HETD, MPRI, Université Paris Diderot, France. Starting December 2019, Luc Maranget is in charge of this course.

Master (M2): "Functional programming and type systems", François Pottier, 18 HETD, MPRI, Université Paris Diderot, France.

Master (M2): "Functional programming and type systems", Didier Rémy, 18 HETD, MPRI, Université Paris Diderot, France. Didier Rémy is in charge of this course.

Licence (L3): Jean-Marie Madiot, "Introduction à l'informatique", 40 HETD, École Polytechnique, France.

Open lectures: Xavier Leroy, *Sémantiques mécanisées: quand la machine raisonne sur ses langages*, 19 HETD, Collège de France, France.

Summer school: Xavier Leroy, *Proving the correctness of a compiler*, 6 HETD, 2019 EUtypes summer school on Types for Programming and Verification, North Macedonia.

9.2.2. Supervision

PhD in progress: Frédéric Bour, "An interactive, modular proof environment for OCaml", Université Paris Diderot, since October 2019, advised by François Pottier and Thomas Gazagnaire (Taridès).

PhD in progress: Basile Clément, "Domain-specific language and machine learning compiler for the automatic synthesis of high-performance numerical libraries", École Normale Supérieure, since September 2018, advised by Xavier Leroy since October 2019.

PhD in progress: Nathanaël Courant, "Towards an efficient, formally-verified proof checker for Coq", Université Paris Diderot, since September 2019, advised by Xavier Leroy.

PhD: Armaël Guéneau, "Mechanized Verification of the Correctness and Asymptotic Complexity of Programs", Université Paris Diderot, defended on December 16, 2019 [11], advised by Arthur Charguéraud and François Pottier.

PhD in progress: Quentin Ladeveze, "Generic conditions for DRF-SC in axiomatic memory models", Université Paris Diderot, since October 2019, advised by Luc Maranget and Jean-Marie Madiot.

PhD in progress: Glen Mével, "Towards a system for proving the correctness of concurrent Multicore OCaml programs", Université Paris Diderot, since November 2018, advised by Jacques-Henri Jourdan and François Pottier.

PhD in progress: Thomas Williams, "Putting Ornaments into practice", Université Paris Diderot, since September 2014, advised by Didier Rémy.

9.2.3. Juries

Xavier Leroy participated in the hiring committee for a professor position at the UFR d'Informatique of U. Paris Diderot.

Xavier Leroy chaired the jury for the Habilitation defense of Yann Régis-Gianas (U. Paris Diderot, November 2019).

Xavier Leroy was external reviewer for the PhD of Andrea Condoluci (U. Bologna, to be defended in 2020).

Jean-Marie Madiot served as an examiner at the computer science oral examination for the "second concours" of École Normale Supérieure de Lyon.

Didier Rémy participated in the hiring committee for an Inria Centrale-Supélec Chair in cybersecurity.

9.3. Popularization

9.3.1. Interventions

Xavier Leroy was on the committee of the 2019 Sephora Berrebi scholarship for women in mathematics and computer science. At the award ceremony (Paris, France, February 2019), he gave a popular science talk on Grace Hopper and the birth of the compiler.

Xavier Leroy gave popularization talks on deductive software verification at the Aerospace Lab Conferences of ONERA (Palaiseau, France, June 2019) and at the Summer 2019 BOB conference (Berlin, Germany, August 2019).

CAMUS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

Philippe Clauss organized the Special Session on Compiler Architecture, Design and Optimization (CADO) of the 17th International Conference on High Performance Computing & Simulation (HPCS 2019), July 2019, Dublin, Ireland.

Philippe Clauss will organize the 10th edition of the International Workshop on Polyhedral Compilation Techniques, held in conjunction with HiPEAC 2020, January 22, 2020, Bologna, Italy.

Cédric Bastoul co-organized HIP3ES 2019 (International Workshop on High Performance Energy Efficient Embedded Systems), in conjunction with the international conference HiPEAC 2019.

Arthur Charguéraud co-organized the summer school École des Jeunes Chercheurs en Programmation (EJCP), June 2019, Strasbourg, France.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

Vincent Loechner has been member of the program committees of HIP3ES 2019, PDP 2020, IMPACT 2020.

Philippe Clauss has been part of the program committees of: CC 2020 (ACM SIGPLAN International Conference on Compiler Construction); ICPP 2020 (49th International Conference on Parallel Processing); IPDRM 2019 (Third Annual Workshop on Emerging Parallel and Distributed Runtime Systems and Middleware, held in conjunction with the International Conference for High Performance Computing, Networking, Storage and Analysis, SC 19).

Arthur Charguéraud has been member of the program committees of ITP 2019, POPL 2020, OOPSLA 2019.

Cédric Bastoul has been part of the program committee of HiPC 2019 (IEEE International Conference on High Performance Computing, Data and Analytics), HIP3ES 2019 (International Workshop on High Performance Energy Efficient Embedded Systems), IMPACT 2019 (International Workshop on Polyhedral Compilation Techniques), CADO 2019 (Special Session on Compiler Architecture, Design and Optimization of the 17th International Conference on High Performance Computing & Simulation - HPCS 2019).

10.1.2.2. Reviewer

Bérenger Bramas has been a reviewer for COMPAS 2019 and PDP 2020.

Arthur Charguéraud has been a reviewer for FOSSACS 2020 and ESOP 2020.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Since October 2001, J. Gustedt is the Editor-in-Chief of the journal *Discrete Mathematics and Theoretical Computer Science* (DMTCS).

10.1.3.2. Reviewer - Reviewing Activities

Bérenger Bramas has been a reviewer for the following journals: Journal of Parallel Computing (Elsevier), Journal of Parallel and Distributed Computing (Elsevier), Journal of Computer Science and Technology (Springer), Parallel Processing Letters (World Scientific), Software: Practice and Experience (Wiley).

Philippe Clauss has been a reviewer for the Journal of Software: Practice and Experience (Wiley).

10.1.4. Invited Talks

Cédric Bastoul delivered the invited talk "Loop Optimization: A Matter of Art and Science" at the Huawei Symposium on Foundations of Software 2019.

10.1.5. Scientific Expertise

10.1.5.1. Standardization

Since Nov. 2014, Jens Gustedt has been a member of the ISO working group SC22-WG14 for the standardization of the C programming language and serves as a co-editor of the standards document, see [46], [47], [40], [33]. He participates actively in the clarification report processing, the planning of future versions of the standard and in a subgroup that discusses the improvement of the C memory model, see [45], [35], [48].

He was one of the main forces behind the elaboration of C17, the new version of the C standard that has been published by ISO in 2018 [51] and contributes to the future standard "C2x" in various ways. In particular he proposed the removal of the so-called K&R definitions [27], the reform of sign representation [25], [26], maximum width integers [44], keywords [31], [41], [36], [36], null pointer constants [34], timing interfaces [37], [30], [30], atomicity and synchronization [42], [32], [39], and function error conventions [28]. Most of these are either integrated in the latest draft or have been adopted subject to reformulations and adaptations.

10.1.5.2. Expertise

Philippe Clauss has been a reviewer for a promotion case to Full Professor in a US University.
Cédric Bastoul has been an expert for the French research ministry and the French finance ministry for the research tax credit programme.

10.1.6. Research Administration

Cédric Bastoul, Philippe Clauss and Vincent Loechner are members of the *Comité d'Experts (section 27, informatique)* of the Université de Strasbourg, providing their scientific and teaching expertise to the university and to the academy. In particular, this committee is involved in the recruitment of researchers and teachers in computer science. Philippe Clauss has been the Vice President of the committee since April 2019.
Jens Gustedt is the head of the ICPS team for the ICube lab, and in that function a member of the board of directors of the lab. He is also a member of the local recruitment committee for PhD students and postdocs of Inria Center Nancy — Grand Est.
Philippe Clauss and Cédric Bastoul are members of the *Collegium Sciences* of the University of Strasbourg, which is a group of representative scientists providing advice regarding the funding of projects.
Philippe Clauss is a member of the *Bureau du Comité des Projets* of the Inria Center Nancy — Grand Est. This group of scientists provides scientific expertise to the Director of the Center.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Bérenger Bramas, Compilation and Performance, 39h, M2, Université de Strasbourg, France

Master: Bérenger Bramas, Compilation, 30h, M1, Université de Strasbourg, France

Licence: Vincent Loechner, responsable pédagogique de la licence professionnelle ASSR-ARS, L3, Université de Strasbourg, France

Licence: Vincent Loechner, algorithmique et programmation, 168h, L1, Université de Strasbourg, France

Licence: Vincent Loechner, administration système et internet, 45h, L3, Université de Strasbourg, France

Licence: Vincent Loechner, programmation parallèle, 23h, L3, Université de Strasbourg, France

Master: Vincent Loechner, programmation temps réel, 10h, M2, Université de Strasbourg, France

Master: Vincent Loechner, calcul parallèle, 20h, 3ième année école d'ingénieur (TPS), Université de Strasbourg, France

Licence: Philippe Clauss, Computer architecture, 18h, L2, Université de Strasbourg, France

Licence: Philippe Clauss, Bases of computer architecture, 22h, L1, Université de Strasbourg, France

Master: Philippe Clauss, Compilation, 84h, M1, Université de Strasbourg, France

Master: Philippe Clauss, Real-time programming and system, 37h, M1, Université de Strasbourg, France

Master: Philippe Clauss, Code optimization and transformation, 31h, M1, Université de Strasbourg, France

Licence (Math-Info): Alain Ketterlin, Algorithmique et programmation, L1, 96h, Université de Strasbourg, France

Licence (Math-Info): Alain Ketterlin, Architecture des systèmes d'exploitation, L3, 38h, Université de Strasbourg, France

Licence (Math-Info): Alain Ketterlin, Programmation système, L2, 40h, Université de Strasbourg, France

Master (Informatique): Alain Ketterlin, Preuves assistées par ordinateur, 18h, Université de Strasbourg, France

Licence: Éric Violard, Modèles de Calcul, 29h, L1, Université de Strasbourg, France

Licence: Éric Violard, Programmation fonctionnelle, 162h, L1, Université de Strasbourg, France

Licence: Éric Violard, Bases de l'architecture informatique, 62h, L1, Université de Strasbourg, France

Licence: Éric Violard, Architecture des ordinateurs, 45h, L2, Université de Strasbourg, France

Licence: Éric Violard, Systèmes concurrents, 9h, L3, Université de Strasbourg, France

Licence: Cédric Bastoul, Computer architecture, 78h, L1, Université de Strasbourg, France, and 25h, L1, UFAZ Azerbaijani-French University, Azerbaijan

Licence: Cédric Bastoul, Parallel programming, 20h, L3, Université de Strasbourg, France, and 25h, L3, UFAZ Azerbaijani-French University, Azerbaijan

Master: Cédric Bastoul, Compiler Design, 48h, M1, Université de Strasbourg, France

Master: Cédric Bastoul, Project Management, 16h, M1, Université de Strasbourg, France

Master: Cédric Bastoul, Introduction to Research, 3h, L2+M1, Université de Strasbourg, France

10.2.2. Supervision

PhD: Armaël Géneau, *Formal verification of complexity analyses*, co-advised by Arthur Charguéraud and François Pottier, defended on December 16th, 2019.

PhD: Paul Godard, *Parallélisation et passage à l'échelle durable d'une chaîne de traitement graphique pour l'impression professionnelle*, Université de Strasbourg, Dec. 16, 2019. Cédric Bastoul and Vincent Loechner.

PhD: Maxime Schmitt, *Génération automatique de codes adaptatifs*, Université de Strasbourg, Sept. 30, 2019. Cédric Bastoul and Philippe Helluy.

PhD: Daniel Salas, *Parallélisation hybride d'une application de détection de noyaux cellulaires*, Université de Strasbourg, Sept. 10, 2019. Jens Gustedt.

PhD in progress: Harenome Ranaivoarivony-Razanajato, *Hierarchical Parallelization and Optimization*, Oct. 2016, Cédric Bastoul and Vincent Loechner.

PhD in progress: Salwa Kobeissi, *Dynamic parallelization of recursive functions by transformation into loops*, since Sept. 2017, Philippe Clauss.

10.2.3. Juries

Philippe Clauss participated in the following PhD committees in 2019:

Date	Candidate	Place	Role
Jan. 28	Hugo Brunie	Université de Bordeaux	Reviewer
Oct. 25	Ksander EJJAAOUANI	Université de Strasbourg	President
Dec. 9	Arif Ali ANAPPARAKKAL	Université de Rennes	Examiner
Dec. 19	Hang YU	Université Grenoble Alpes	Reviewer

Cédric Bastoul participated in the following PhD committees in 2019:

Date	Candidate	Place	Role
Mar. 29	Pierre Huchant	Université de Bordeaux	Reviewer
Jun. 21	Chandan Reddy	École Normale Supérieure	Reviewer

10.3. Popularization

- A. Charguéraud is a co-organizer of the *Concours Castor informatique*. The purpose of the Concours Castor in to introduce pupils (from *CM1* to *Terminale*) to computer sciences. More than 700,000 teenagers played with the interactive exercises in November 2019. More information on: http://castor-informatique.fr/.

10.3.1. Articles and contents

- Jens Gustedt authored the book *Modern C* [24], which since the first publication of an online draft in 2016 has become one of the major references for the C programming language.

- Jens Gustedt is blogging about efficient programming, in particular about the C programming language. He also is an active member of the stackoverflow community, a technical Q&A site for programming and related subjects.

10.3.2. Education

- Cédric Bastoul participated in the training of high school teachers involved in the forthcoming optional Computer Science course for high school students. Specifically, he produced lectures and materials to teach Computer Architecture to high school students.

10.3.3. Interventions

- Vincent Loechner has been organizing a hub for the Google Hashcode programming contest (online qualification round) at Université de Strasbourg in Feb. 2019. More than 30 students and colleagues were hosted in the university classrooms to participate to this event.

- Cédric Bastoul delivered a presentation on program optimization at "Journée des licences" ("Bachelor Day") in June 2019.

10.3.4. Internal action

- Bérenger Bramas, Jens Gustedt and other members of the scientific computing group (*axe transverse calcul scientifique*) organized two software corners at the ICube laboratory. A software corner is a meeting where researchers exchange about programming best practices, existing and upcoming tools, and their own experiences.

CARAMBA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Member of steering committees

Pierrick Gaudry is a member of the steering committee of the Workshop on Elliptic Curve Cryptography (ECC).

Emmanuel Thomé is a member of the steering committee of the Algorithmic Number Theory Symposium (ANTS).

10.1.1.2. Member of the Conference Program Committees

- Aurore Guillevic was a member of the Program Committee of Latincrypt 2019 and WCC 2019.
- Virginie Lallemand was a member of the Program Committee of Asiacrypt 2019.
- Cécile Pierrot was a member of the Program Committee of EUROCRYPT 2020 and Journées Codage et Cryptographie 2020.
- Pierre-Jean Spaenlehauer was a member of the Program Committee of ISSAC 2019.
- Emmanuel Thomé is a member of the scientific directorate of the Dagstuhl computer science seminar series.

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- Virginie Lallemand is a member of the editorial board of the IACR Transactions on Symmetric Cryptology (ToSC) Journal for 2019/2020. This journal is the open-access journal associated to the International Conference on Fast Software Encryption (FSE). She is also a member of the editorial board for the Special Issue of ToSC on Designs for the NIST Lightweight Standardization Process.

10.1.2.2. Reviewer - Reviewing Activities

Members of the project-team did their share in reviewing submissions to renowned conferences and journals. Actual publications venues are not disclosed for anonymity reasons.

10.1.3. Invited Talks

- Cécile Pierrot and Pierrick Gaudry were invited to give a talk at the Elliptic Curve Cryptography Conference (ECC19), Bochum, Germany.
- Marine Minier was invited to give a talk at the Journées Scientifiques Inria in Lyon, France, June 2019.
- Pierrick Gaudry gave a lecture during the Summer School Mathematical foundations of asymmetric cryptography, Aussois, France.
- Aurore Guillevic and Virginie Lallemand were invited to give a talk at the C2 seminar (formerly CCA seminar), Paris, France.
- Aurore Guillevic was invited to give a talk at the Workshop on Randomness and Arithmetics for Cryptography on Hardware in Roscoff, Brittany, France.

10.1.4. Research Administration

- Jérémie Detrey chaired the *Commission des Utilisateurs des Moyens Informatiques* (CUMI) of the Inria Nancy – Grand Est research center until November 2019.

- Pierrick Gaudry is:
    - vice-head of the *Commission de mention Informatique* of the *École doctorale IAEM* of the University of Lorraine;
    - a member of the *Conseil Scientifique du GdR IM*;
    - member of the visiting committee for the HCERES evaluation of the CRIStAL laboratory (Lille).
- Aurore Guillevic
    - was member of the CoS, poste MCF number 27MCF1087, Université de Clermont Auvergne;
    - was member of the CoS, poste Chargé d'Enseignement (ChE), École Polytechnique (Palaiseau).
- Marine Minier
    - is a member of Collegium of Science et Techniques of Université de Lorraine;
    - was a member of the CoS, poste MCF number 27MCF-0781944P-4184, Université de Versailles.
- Pierre-Jean Spaenlehauer is a member of the *commission développement technologique* (CDT) of the Inria Nancy - Grand Est research center.
- Emmanuel Thomé
    - is a member of the management committee for the research project "CPER Cyberentreprises" (co-chair);
    - is a member of the *Comipers* of the Inria Nancy – Grand Est research center, in charge of deciding the attribution of Inria PhD and post-doc grants;
    - is an elected member of the Inria evaluation committee (CE), and a member of the committee "bureau";
    - is an elected member of the Inria technical committee (CTI).
- Paul Zimmermann is member of the Scientific Committee of the EXPLOR *Mésocentre*, of the "groupe de réflexion" *Calcul, Codage, Information* of the GDR-IM, of the scientific council of the LIRMM laboratory in Montpellier, France.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: Jérémie Detrey, *Sécurité des applications Web*, 2h eq. TD, LP, Université de Lorraine, IUT Charlemagne, Nancy, France.

Licence: Pierrick Gaudry, *Intégration Web*, 48h eq. TD, IUT 1A, Université de Lorraine, IUT Charlemagne, Nancy, France.

Licence: Aurore Guillevic, *Introduction to algorithms* (CSE103), 32 eq. TD, L1, École Polytechnique, Palaiseau, France.

Licence: Aurore Guillevic, *Les bases de la programmation et de l'algorithmique* (INF411), 40 eq. TD, 2e année, École Polytechnique, Palaiseau, France.

Master: Marine Minier, *Contrôle d'accès*, 40h eq. TD, M2 Informatique, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-lès-Nancy, France.

Master: Marine Minier, *Intégration Méthodologique*, 36h eq. TD, M2 Informatique, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-lès-Nancy, France.

Master: Marine Minier, *Introduction à la cryptographie*, 15h eq. TD, M1 Informatique, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-lès-Nancy, France.

Licence: Marine Minier, *Introduction à la sécurité et à la cryptographie*, 10 hours (lectures) + 10 hours (tutorial sessions) + 10 hours (practical sessions), L3, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-lès-Nancy, France.

Licence: Marine Minier, *Mathématiques Discrètes*, 80h eq. TD, L2, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-lès-Nancy, France.

Responsability of the M2 SIRAV *Sécurité Informatique, Réseaux et Architectures Virtuelles*, 30 students: Marine Minier. Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-lès-Nancy, France.

Master: Cécile Pierrot, *Introduction à la cryptographie*, 60h eq. TD, Mastère spécialisé en sécurité, École des Mines de Nancy, France.

Master: Cécile Pierrot, *Introduction à LaTeX*, 6h eq. TD, Master 1, École des Mines de Nancy, France.

Master: Emmanuel Thomé, *Protocoles de sécurité et Vérification* (sub-part dedicated to cryptographic primitives), 8h (lectures) + 6h (tutorial sessions), Télécom Nancy.

10.2.2. Supervision

PhD in progress: Sandra Rasoamiaramanana, *Délivrance de contextes sécurisés par des approches hybrides*, since May 2017, PhD CIFRE Orange Gardens, Marine Minier. Planed to be defended in April 2020.

PhD in progress: Simon Masson, *Algorithmique des courbes destinées aux contextes de la cryptographie bilinéaire et post-quantique*, since Jan. 2018, Emmanuel Thomé and Aurore Guillevic.

PhD in progress: Aude Le Gluher, *Analyse algorithmique fine et simulation du crible algébrique*, since Sep. 2018, Pierre-Jean Spaenlehauer and Emmanuel Thomé.

PhD in progress: Gabrielle De Micheli, *Le logarithme discret dans les corps finis*, since Oct. 2018, Cécile Pierrot and Pierrick Gaudry.

PhD in progress: Paul Huynh, *Analyse et conception de chiffrements authentifiés à bas coût*, since Oct. 2017, Marine Minier.

PhD in progress: Hamid Boukerrou, *Design of New Finite State Dynamical Systems Admitting a Matrix Representation: Application to Cryptography*, since Oct. 2019, Marine Minier and Gilles Millerioux.

10.2.3. Juries

Pierrick Gaudry was

- reviewer of the PhD thesis *Arithmétique rapide pour des corps finis* defended by Robin Larrieu, December 2019, École polytechnique;
- member of the PhD thesis jury *Delaunay triangulations of a family of symmetric hyperbolic surfaces in practice* defended by Iordan Iordanov, March 2019, Université de Lorraine;
- member of the HdR jury *Cryptographie basée sur les corps quadratiques : cryptanalyses, primitives et protocoles* defended by Guilhem Castagnos, November 2019, Université de Bordeaux.

Virginie Lallemand was member of the PhD thesis jury: *Optimization of Core Components of Block Ciphers* defended by Baptiste Lambin on the 22nd of October 2019 at the University of Rennes 1.

Marine Minier:

- reviewer of the PhD thesis: Secure Multi-Party Computation and Privacy defended by Aurélien Dupin, June 2019, ENS Ulm, Paris.
- reviewer of the PhD thesis: Optimization of Core Components of Block Ciphers defended by Baptiste Lambin, October 2019, Université de Rennes, Rennes.

- reviewer of the PhD thesis: Représentations adaptées à l'arithmétique modulaire et à la résolution de systèmes flous defended by Jérémie Marrez, December 2019, Université Paris 6, Paris.

- reviewer of the PhD thesis: Security for the Internet of Things: A bottom-up approach to the secure and standardized Internet of Things defended by Timothy Claeys, December 2019, Université Grenoble Alpes, Grenoble.

- President of the PhD thesis jury: Software Datapaths for Multi-Tenant Packet Processing defended by Paul Chaignon, June 2019, Université de Lorraine, Nancy.

- President of the PhD thesis jury: Usability: low tech, high security, defended by Nicolas Blanchard, June 2019, Université de Paris, Paris.

- President of the PhD thesis jury: Contributions à l'analyse de canaux auxiliaires sans connaissance des clairs et chiffrés, et à la recherche de S-boxes compactes, defended by Léo Reynaud, December 2019, Université de Limoges, Limoges.

Emmanuel Thomé was:

- reviewer for the HDR thesis *Algorithmes et implantations efficaces en algèbre linéaire exacte* defended by Pascal Giorgi, October 2019, Université de Montpellier.

- member of the PhD thesis jury *Vote électronique : définitions et techniques d'analyse* defended by Joseph Lallemand, November 2019, Université de Lorraine;

Paul Zimmermann was reviewer of the PhD thesis *Formalisations d'analyses d'erreurs en analyse numérique et en arithmétique à virgule flottante* defended by Florian Faissole, December 2019, Université Paris-Saclay.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Pierrick Gaudry was member of a jury for the Innoviris LAUNCH program, whose goal is to fund start-ups created on the basis of academic work.

10.3.2. Articles and contents

- Cécile Pierrot wrote a blog post for Le Monde Binaire.

10.3.3. Interventions

- Cécile Pierrot gave a talk about women in science at a meeting *Les Filles, osez les sciences !* in Reims, March 2019.

- Cécile Pierrot and Paul Zimmermann took part in La Fête de la Science, Nancy and Bouxurulles, October 2019.

- Cécile Pierrot gave a talk at La Cité des Sciences, Paris, to open the exhibition called *Espions*, November 2019.

- Pierre-Jean Spaenlehauer gave an introductory talk on polynomial systems to visiting students of the ÉNS Paris-Saclay.

CASCADE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. Events and Activities

- Quarterly Paris Crypto Days (https://pariscryptoday.github.io) supported by CryptoCloud and aS-CEND

- Seminars are organized: https://crypto.di.ens.fr/web2py/index/seminars

- OPACity – Obfuscation: Proofs, Attacks & Candidates, (http://crypto-events.di.ens.fr/opacity/) Eurocrypt affiliated event. May 19, 2019, Darmstadt, supported by aSCEND

- BibTeX database of papers related to Cryptography, open and widely used by the community (https://cryptobib.di.ens.fr)

8.1.1.2. Steering Committees of International Conferences

- Steering committee of CANS: David Pointcheval

- Steering committee of PKC: David Pointcheval

- Steering committee of LATINCRYPT: Michel Abdalla (chair)

- Steering committee of Information-Theoretic Cryptography Conference: Hoeteck Wee

8.1.1.3. Board of International Organisations

- Board of the *International Association for Cryptologic Research* (IACR): Michel Abdalla (2013 – 2021)

- President-Elect of the *International Association for Cryptologic Research* (IACR): Michel Abdalla (2019 –)

8.1.2. Scientific Events Selection

8.1.2.1. Program Committee Member

- ACNS '19 (Bogotá, Colombia): Michel Abdalla

- ASIACRYPT '19 (Kobe, Japan): Brice Minaud, Hoeteck Wee

- CT-RSA '19 (San Francisco, California, USA): David Pointcheval

- EUROCRYPT '19 (Darmstadt, Germany): Michel Abdalla

- LATINCRYPT '19 (Santiago, Chile): Michel Abdalla

- PKC '20 (Edinburgh, Scotland): Georg Fuchsbauer

8.1.2.2. Editorial Boards of Journals

Editor-in-Chief

- of the *International Journal of Applied Cryptography (IJACT)* – Inderscience Publishers: David Pointcheval

Associate Editor

- of *ETRI Journal*: Michel Abdalla

- of *Journal of Mathematical Cryptology*: Phong Nguyen

- of *Applicable Algebra in Engineering, Communication and Computing*: David Pointcheval

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- Master: Michel Abdalla, Brice Minaud, Cryptography, M2, MPRI
- Master: Phong Nguyen, Cryptography, M2, ESIEA
- Bachelor: Brice Minaud, Georg Fuchsbauer, David Pointcheval, Introduction to Cryptology, L3/M1, ENS
- Bachelor: Michel Abdalla, Formal Languages, Computability, and Complexity, L3/M1,
- Bachelor: Georg Fuchsbauer, Cryptography, École supérieure d'ingénieurs Léonard-de-Vinci

8.2.2. Defenses

- PhD: Romain Gay, Public-key Encryption, Revisited: Tight Security and Richer Functionalities, ENS, March 18th, 2019 (Supervisors: Michel Abdalla & Hoeteck Wee)
- PhD: Anca Nitulescu, A Tale of SNARKs: Quantum Resilience, Knowledge Extractability and Data Privacy, ENS, April 1st, 2019 (Supervisors: Michel Abdalla, Dario Fiore & David Pointcheval)
- PhD: Razvan Rosie, On the Achievability of White-Box Cryptography, ENS, May 28th, 2019 (Supervisor: Michel Abdalla)
- PhD: Louiza Khati, Full Disk Encryption and Beyond, ENS, July 15th, 2019 (Supervisor: Damien Vergnaud)
- PhD: Jérémy Chotard, Delegation in Functional Encryption, ENS, December 2nd, 2019 (Supervisor: David Pointcheval, with Duong Hieu Phan, at Limoges)

8.2.3. Supervision

- PhD in progress: Michele Orrù, Functional Encryption, from 2016, Georg Fuchsbauer & Hoeteck Wee
- PhD in progress: Balthazar Bauer, Transferable e-Cash, from 2017, Georg Fuchsbauer
- PhD in progress: Chloé Hébant, Big Data and Privacy, from 2017, David Pointcheval (with Duong Hieu Phan, at Limoges)
- PhD in progress: Mélissa Rossi, Post-Quantum Cryptography, from 2017, Michel Abdalla (with Henri Gilbert at ANSSI)
- PhD in progress: Antoine Plouviez, Privacy and Decentralization, from 2018, Georg Fuchsbauer
- PhD in progress: Baptiste Cottier, Privacy-preserving anomaly detection, from 2019, David Pointcheval (with Olivier Blazy, at Limoges)
- PhD in progress: Théo Ryffel, Privacy-preserving federated learning, from 2019, Francis Bach and David Pointcheval
- PhD in progress: Lénaïck Gouriou, Advanced encryption with post-quantum security, from 2019, David Pointcheval (with Cécile Delerablée at Leanear)

8.2.4. Committees

- PhD Marc Beunardeau. *Cryptographie Appliquée à la Sécurité des Systèmes d'Information* – Ecole Normale Supérieure – France – January 15th, 2019: David Pointcheval (Chair)
- HdR Catalin Hritcu. *The Quest for Formally Secure Compartmentalizing Compilation* – Ecole Normale Supérieure – France – January 29th, 2019: David Pointcheval
- PhD Romain Gay. *Public-key Encryption, Revisited: Tight Security and Richer Functionalities* – Ecole Normale Supérieure – France – March 18th, 2019: Michel Abdalla and Hoeteck Wee (Co-supervisors)

- PhD Mary Maller. *Practical zero-knowledge arguments from structured reference strings* – University College London – United Kingdom – March 26th, 2019: Georg Fuchsbauer (Reviewer)

- PhD Anca Nitulescu. *A Tale of SNARKs: Quantum Resilience, Knowledge Extractability and Data Privacy* – Ecole Normale Supérieure – France – April 1st, 2019: Michel Abdalla and David Pointcheval (Co-supervisors)

- PhD José Miguel López Becerra. *Provable Security Analysis for the PAKE Problem* – University of Luxembourg – Luxembourg – May 14th, 2019: Michel Abdalla

- PhD Razvan Rosie. *On the Achievability of White-Box Cryptography* – Ecole Normale Supérieure – France – May 28th, 2019: Michel Abdalla (Supervisor)

- HdR Olivier Blazy. *Hash Proofs Systems and Applications to Implicit Cryptography* – Université de Limoges – France – June 12th, 2019: David Pointcheval

- PhD Aurélien Dupin. *Secure Multi-Party Computation and Privacy* – Université Bretagne Loire – France – June 13rd, 2019: David Pointcheval (Co-supervisor)

- PhD Louiza Khati. *Full Disk Encryption and Beyond* – Ecole Normale Supérieure – France – July 15th, 2019: David Pointcheval

- PhD Julian Loss. *New Techniques for the Modular Analysis of Digital Signature Schemes* – Ruhr Universität Bochum – Germany – July 20th, 2019; David Pointcheval (Reviewer)

- PhD Aisling Connolly. *New Notions of Security, Broken Assumptions, and Increased Efficiency* – Ecole Normale Supérieure – France – September 13th, 2019: Michel Abdalla

- PhD Chen Qian. *Lossy Trapdoor Primitives, Zero-Knowledge Proofs and Applications* – Université de Rennes 1 – France – October 4th, 2019: Michel Abdalla

- PhD Alice Pellet–Mary. *On ideal lattices and the GGH13 multilinear map* – Ecole Normale Supérieure de Lyon – France – October 16th, 2019: David Pointcheval (Chair and Reviewer)

- HdR Guilhem Castagnos. *Cryptography based on Quadratic Fields: Cryptanalyses, Primitives and Protocols* – Université de Bordeaux – France – November 8th, 2019: David Pointcheval (Reviewer)

- PhD Joseph Lallemand. *Vote électronique : définitions et techniques d'analyse* – Université de Lorraine – France – November 8th, 2019: David Pointcheval (Reviewer)

- PhD Loïc Ferreira. *Secure Tunnels for Constrained Environments* – Université Bretagne Loire – France – November 18th, 2019: David Pointcheval

- PhD Pauline Bert. *Lattice-based signatures: from construction to implementation* – Université Bretagne Loire – France – November 29th, 2019: David Pointcheval

- PhD Jérémy Chotard. *Delegation in functional encryption* – Université de Limoges - France – Décember 2nd, 2019: David Pointcheval (Co-supervisor) and Michel Abdalla (Chair)

CASH Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

- Laure Gonnord animates the french compilation community since 2010 (http://compilfr.ens-lyon.fr.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Laure Gonnord was PC chair and organizer of the 8th Numerical and Symbolic Abstract Domain (NSAD, satellites workshop of SAS 2019, FM2019, in Porto.)
- Ludovic Henrio was chair of the ICE'19 workshop.

9.1.2.2. Member of the Conference Program Committees

- Laure Gonnord is a PC member of **CAV** 2019 Conference on Computer-Aided Verification. She will be PC member of SBLP'20 (Brazilian Symposium on Programming Languages).
- Ludovic Henrio has been a PC member of FASE 2019, ACSD 2019, Coordination 2019, HLPP 2019, AGERE 2019, and iFM 2019
- Christophe Alias has been a PC member of COMPAS'19.

9.1.2.3. Reviewer

- Christophe Alias was reviewer for MCSoC'19.
- Matthieu Moy was reviewer for CAV'19, IFM'19, MCSOC'19

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

- Ludovic Henrio was reviewer for the HLPP'19 special issue in IJPP. He is also guest editor for the special issues associated to the ICE workshop of the last 4 years.
- Christophe Alias was reviewer for ACM TOPC.
- Matthieu Moy was reviewer for Journal of Electronics.

9.1.4. Invited Talks

- Matthieu Moy presented a talk "La génération de code temps réel sur architecture many-coeur" at the annual colloquium of GDR SOC2.

9.1.5. Research Administration

- Laure Gonnord is elected member of the LIP council and the Fédération d'Informatique de Lyon council.
- Laure Gonnord is elected member of the Inria National "Commission d'Evaluation" from september 2019.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence:

- Christophe Alias, Compilation, CM+TD, 27h, 3A, INSA Centre Val de Loire.
- Laure Gonnord, Algorithmic, C++ Programming, TD+TP, 42h, L2, UCBL
- Laure Gonnord, Operating Systems, TD+TP, 26h, L2, UCBL
- Matthieu Moy, Concurrent Programming, CM+TD+TP, 57h, L3, UCBL.
- Matthieu Moy, Recursive Programming, TD+TP, 48h, L1, UCBL.
- Matthieu Moy, Git, CM+TP: 12h, L3, UCBL.
- Amaury Maillé, Concurrent Programming, 8h TD, 14 h 30 TP, L3, UCBL.
- Paul Iannetta, ACM, TD, 32h, L3, ENS de Lyon.
- Paul Iannetta, Projet 1, TD, 36h, L3, ENS de Lyon.
- Paul Iannetta, Colloquium L3, TD, 2h, L3, ENS de Lyon
- Paul Iannetta, Jury de stage, TD, 4h, L3, ENS de Lyon
- Julien Braine, ASR, TP et TD, 32h, L3, ENS de Lyon.

Master:

- Christophe Alias, Compiler optimizations for embedded applications, CM+TD, 27h, 4A, INSA Centre Val de Loire.
- Laure Gonnord, Compilation and Program Analysis, CM, 10h, TP 8h, M1, ENS de Lyon.
- Laure Gonnord, Compilation and program transformations, CM+TD+TP, 35h, M1, UCBL.
- Laure Gonnord, Real Time Systems, CM+TD+TP, 30h, M1, UCBL.
- Laure Gonnord, Distributed Systems, TD 9h, M1, UCBL.
- Laure Gonnord, Graphs, Complexity, Algorithmics, M1 MEEF (CAPES Maths, prepa), CM+TD+TP+oral training, 18h, UCBL.
- Laure Gonnord, Algorithmics, Systems M1 MEEF (CAPES NSI, prepa), CM+TD, 15h, UCBL.
- Laure Gonnord, Algorithmics, Architecture, Systems, DIU EIL, CM+TD+TP, 60h, UCBL.
- Matthieu Moy, Software Engineering, CM+TD+TP, 25h, M1, UCBL.
- Matthieu Moy, Compilation and Program Analysis, TP, 16h, M1, ENS de Lyon.
- Matthieu Moy, Compilation and program transformations, TD+TP, 25h, M1, UCBL.
- Ludovic Henrio, Compilation and Program Analysis, CM, 10h; TP, 6h, M1, ENS de Lyon.
- Ludovic Henrio, Distributed Systems: an algorithmic approach, CM+TD, 3h, M2 Specialite IFI (Ingénierie et Fondements de l'Informatique), parcours CSSR, and UBINET, Université de Nice Sophia-Antipolis.
- Amaury Maillé, Networks, 2h TD, M1, UCBL.
- Paul Iannetta, Projet Intégré, TD, 14h, M1, ENS de Lyon.
- Paul Iannetta, Jury de stage, TD, 4h, M1, ENS de Lyon
- Julien Braine, APPD, TP et TD, 28h, M1, ENS de Lyon.

9.2.2. Supervision

- PhD in progress: Gabriel Busnot, "Accélération SystemC pour la co-simulation multi-physique et la simulation de modèles hétérogènes en complexité", Univ. Lyon 1, started in october 2017, supervised by Matthieu Moy (LIP) and Tanguy Sassolas (CEA-LIST).
- PhD: Tristan Delizy, "Dynamic Memory Management For Embedded Non-Volatile Memory", INSA Lyon, started in October 2016, supervised by Guillaume Salagnac (CITI), Tanguy Risset (CITI), Kevin Marquet (CITI) and Matthieu Moy (LIP).

- PhD in progress (from Sept. 2018): Paul Iannetta "Complex data structures scheduling for optimizing compilers", supervised by Lionel Morel (CITI/CEA) and Laure Gonnord (LIP).

- PhD in progress (from Sept. 2018): Julien Braine "Horn Clauses as an Efficient Intermediate Representation for Data Structure Verification", supervised by David Monniaux (CNRS/Verimag) and Laure Gonnord (LIP).

- PhD in progress: Pierre Leca, "Distributed BSP: Active Objects for BSPlib programs", CIFRE Huawei/UNS, started in August 2017, supervised by Gaëtan Hains (Huawei), Wijnand Suijlen (Huawei), Françoise Baude (UNS./I3S), Ludovic Henrio (LIP).

- PhD in progress: Amaury Maillé, "Programming model to assemble compute kernels safely and efficiently: Future- based synchronization for arrays and matrices", ENS Lyon, supervised by Matthieu Moy and Ludovic Henrio. Started in October 2019, supervised by Gaëtan Hains (Huawei), Wijnand Suijlen (Huawei), Françoise Baude (UNS./I3S), Ludovic Henrio (LIP).

9.2.3. *Juries*

- Laure Gonnord was external jury member for the PhD of Yohan Uguen, "High-level synthesis and arithmetic optimizations" (INSA de Lyon).

- Ludovic Henrio was part of the reading commitee of Keyvan Azadbakht (Universiteit Leiden).

- Christophe Alias was a reviewer and member of the PhD committee of Hang YU (Université Grenoble-Alpes).

- Christophe Alias was *correcteur* and jury member for *concours d'admission X/ENS*.

- Laure Gonnord was jury member for the *C*oncours d'admission de l'Agrégation de Sciences Industrielles, spécialité Informatique Industrielle, in June 2019.

- Matthieu Moy was reviewer for the Ph.D of Hamza Deroui, "Étude et implantation d'algorithmes pour l'ordonnancement d'applications dataflow" (INSA Rennes).

9.3. Popularization

9.3.1. *Articles and contents*

- "Pourquoi créer des nouveaux langages de programmation?" Ludovic Henrio. Interstices. Janvier 2019.

9.3.2. *Education*

- Laure Gonnord has participated to the construction of the diploma "teaching computer science in high schools" in Lyon, and also the new preparatory cursus for the "CAPES-NSI" at Lyon1 university.

9.3.3. *Interventions*

- Laure Gonnord was invited by the "Association des profs de Prepa" to give her expertise about teaching computer science in the first universitary cycle. The context is the creation of a new preparatory class with a computer science minor "MPI" (Maths, Physics, Computer Science).

- Matthieu Moy presented a talk "Se lancer dans le logiciel libre quand on est étudiant (ou pas)" at "Campus du libre", Lyon.

<p style="text-align:center;color:red;font-weight:bold;">CELTIQUE Project-Team</p>

6. Dissemination

6.1. Promoting Scientific Activities

6.1.1. Scientific Events: Organisation

6.1.1.1. Member of the Conference Program Committees

- Frédéric Besson: PriSC 2019 Workshop on Principles of Secure Compilation
- Sandrine Blazy: POPL 2020 (Symposium on Principles of Programming Languages), APLAS 2019 (Asian Symposium on Programming Languages and Systems), ITP 2019 (Conference on Interactive Theorem Proving), SpiSA 2019 (Workshop on Instruction Set Architecture Specification).
- Thomas Jensen: SAS 2019 (Static Analysis Symposium), ENTROPY 2019 (Enabling Trust through OS proofs).

6.1.1.2. Reviewer

- Frédéric Besson: TACAS

6.1.2. Journal

6.1.2.1. Reviewer - Reviewing Activities

- Frédéric Besson: Journal of Computer Security (JCS), Transactions on Software Engineering (TSE)
- Alan Schmitt: Theoretical Informatics and Applications (RAIRO ITA)

6.1.3. Invited Talks

- Frédéric Besson: GT Sécurité des Systèmes, des Logiciels et des Réseaux
- Sandrine Blazy: *The Verasco static analyzer*, Effective Verification: Static Analysis Meets Program Logics, Lorentz center, Netherlands, May. 2019
- Sandrine Blazy: *Formal Verification of a Constant-Time Preserving C Compiler*, Verified software workshop, Newton institute, Cambridge, United Kingdom, Sept. 2019
- Alan Schmitt: *Sémantiques Formelles et Certifiées*, 30 ans des JFLA
- Alan Schmitt: *Formal JavaScript*, Journées Nationales du GDR GPL
- Alan Schmitt: *Skeletal Semantics*, GT Langages, Types et Preuves

6.1.4. Leadership within the Scientific Community

- Sandrine Blazy is member of Section 6 of the national committee for scientific research CoNRS.
- Sandrine Blazy is member of IFIP WG 2.11 on program generation and of IFIP WG 1.9/2.15 on verified software.

6.1.5. Scientific Expertise

- Sandrine Blazy evaluated two Belgian FWO Grant research proposals.
- Sandrine Blazy is member of the Scientific Advisory Board of the Flemish Cybersecurity Initiative Flanders Program.
- Sandrine Blazy and David Pichardie were members of the HCERES evaluation committee of the LSV laboratory.
- Thomas Jensen was member of the HCERES evaluation committee of the University Grenoble–Alpes LIG laboratory.

- Thomas Jensen was vice-president of the ANR 2019 selection committee for research proposals in Computing and Communication (CES 25).

6.1.6. Research Administration

- Sandrine Blazy and Thomas Jensen are members of the steering committee of the international Static Analysis Symposium.

6.2. Teaching - Supervision - Juries

6.2.1. Teaching

License : Frédéric Besson, Functional programming, 28h, Insa3, Insa Rennes, France

Licence : Sandrine Blazy, Programmation de confiance, 81h, L3, Université Rennes 1, France

Master : Sandrine Blazy, Semantics of Programming Languages, 20h, M1, Université Rennes 1, France

Master : Sandrine Blazy, Software vulnerabilities, 30h, M2, Université Rennes 1, France

Licence : Delphine Demange, Spécialité Informatique 1 - Algorithmique et Complexité Expérimentale, 36h, L1, Université Rennes 1, France

Licence : Delphine Demange, Spécialité Informatique 2 - Functional and Immutable Programming, 70h, L1, Université Rennes 1, France

Licence : Delphine Demange, Programmation de Confiance, 36h, L3, Université Rennes 1, France

Licence : Thomas Genet, Spécialité Informatique 1 - Algorithmique et Complexité Expérimentale, 47h, L1, Université Rennes 1, France

Licence : Thomas Genet, Initiation au génie logiciel, 67h, L2, Université Rennes 1, France

Licence : Alan Schmitt, Programmation de Confiance, 30h, L3, Université Rennes 1, France

Licence : David Pichardie, Programmation, 30h, L3, ENS Rennes, France

Master : David Pichardie, Semantics of Programming Languages, 30h, M1, Université Rennes 1, France

Master : David Pichardie, Static analysis, 30h, M1, Université Rennes 1, France

Master : Delphine Demange, Software Security, 9h, M2, Université Rennes 1, France

Master : Thomas Genet, Enseigner l'informatique au lycée, 15h, M1, Université Rennes 1, France

Master : Thomas Genet, Analyse et conception formelle, 65h, M1, Université Rennes 1, France

Master : Benoît Montagu, Analyse et Conception Formelles, 16h, M1, Université Rennes 1, France

Master : Alan Schmitt, Suivi de Projet, 24h, M1, ENS Rennes, France

Master : Alan Schmitt, Advanced Semantics, 15h, M2, ENS Rennes, France

Master : Alan Schmitt, Preparation of Agregation exam, 20, M2, ENS Rennes, France

License : Thomas Jensen, Logic, 30h, Insa3, Insa Rennes, France

Master : Thomas Jensen, Software Security , 18h, M2, Université Rennes 1, France

6.2.2. Supervision

Phd : Alexandre Dang, Compilation for memory protection, Université Rennes 1, 10/12/2019, Thomas Jensen, Frédéric Besson

Phd : Julien Lepiller, Verifying Software Fault Isolation, Université Rennes 1, 11/12/2019, Thomas Jensen, Frédéric Besson

PhD in progress : Timothée Haudebourg, Verification of Higher-Order Functional Programs using Tree Automata, September 2017, Thomas Genet and Thomas Jensen

PhD in progress : Rémi Hutin, A C compiler ensuring security properties, September 2018, Sandrine Blazy and David Pichardie

PhD in progress : Aurèle Barrière, Formal verification of a JIT compiler, September 2019, Sandrine Blazy and David Pichardie

PhD in progress : Samy Daoud, Modélisation formelle pour le déploiement et la reconfiguration automatique en ligne dans une infrastructure réseau et IT répartie, November 2018, Alan Schmitt

PhD in progress : Adam Khayam, Formal Semantics of Multitier Languages, July 2019, Alan Schmitt

PhD in progress : Guillaume Ambal, Sémantiques Squelettiques pour Calculs de Processus, September 2019, Alan Schmitt

PhD in progress : Louis Noizet, Compilation Certifiée de Sémantiques Squelettiques, October 2019, Alan Schmitt

Master 2 internship : Aurèle Barrière, Formal verification of a JIT compiler, February of June 2019, Sandrine Blazy and David Pichardie

Master 1 internship : Guillaume Barbier, Maxime Bridoux, Jean Jouve, Clément Legrand-Duchesne, Skeletal Semantics for WebAssembly, September 2018 to May 2019 Alan Schmitt

ENS 4th year internship : Nathanaël Courant, CFA Generation from a Skeletal Semantics, September 2019 to July 2019, Thomas Jensen and Alan Schmitt

ENS 4th year internship : Vincent Rebiscoul, Certified CFA Generation, September 2019 to February 2020, Thomas Jensen and Alan Schmitt

ENS 3th year internship : Justine Sauvage, Modèles formels pour la blockchain, May 2019 to July 2019, Thomas Genet and Thomas Jensen

6.2.3. *Juries*

- Sandrine Blazy, jury member for the selection of CNRS CR and DR (researchers) candidates, February and March 2019, CNRS, Paris, France.

- Sandrine Blazy, jury member (president) for the PhD defense of Simon Lunel, January 2019, Université Rennes 1

- Sandrine Blazy, jury member for the PhD defense of Joseph Lallemand, November 2019, Lorraine University, Nancy

- Sandrine Blazy, jury member for the HDR defense of Yann Régis-Gianas, November 2019, Paris University

- Sandrine Blazy, jury member (reviewer) for the PhD defense of Mathieu Journault, November 2019, Paris Sorbonne University

- Sandrine Blazy, jury member (president) for the PhD defense of Arif Ali Anapparakkal, December 2019, Université Rennes 1

- Sandrine Blazy, jury member (president) for the PhD defense of Julien Lepiller, December 2019, Université Rennes 1

- Sandrine Blazy, jury member of the GDR GPL PhD award committee

- Sandrine Blazy, member of hiring committee for a professor position, Spring 2019, UBO, Brest

- Thomas Genet, jury member (reviewer) for the PhD defense of Lily Gallois, December 2019, Université de Lille

- Alan Schmitt, president of jury for the PhD defense of Florian Dold, February 2019, Université Rennes 1

- Alan Schmitt, jury member (examiner) for the PhD defense of Julien Lopez, September 2019, Université Paris-Saclay

- Alan Schmitt, jury member (reviewer) for the PhD defense of Steven Varoumas, November 2019, Sorbonne Université

- Delphine Demange, jury member (examiner) for the PhD defense of Oscar Luis Vera Pérez, December 2019, Université Rennes 1

- Delphine Demange, member of hiring committee for a Maître de Conférence position, Spring 2019, Lyon 1 / LIP.

6.3. Popularization

6.3.1. Interventions

- Thomas Genet gave a talk "Bug, Virus, Intrusion, Pirates... So many threats and no defense? Yes... maths." in high schools close to Rennes. 2019.

CIDRE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Ludovic Mé served as general chair of the conference RESSI (Rendez-Vous de la Recherche et de l'Enseignement de la Sécurité des Systèmes d'Information), May 2019, Erquy, France.

- Guillaume Hiet is the chair holder of the SILM thematic semester. He served as general chair of the SILM workshop, November 2019, Rennes, France.

The SILM thematic semester [0] is dedicated to the security of software/hardware interfaces and focus more particularly on the three following axes:

1. Analyzing the behavior and the state of hardware components using, e.g. trace mechanisms, fuzzing, reverse-engineering techniques, or side channel analyses;

2. Studying the hardware vulnerabilities and the software attacks that can exploit them: e.g. side-channels, fault injections, or exploitation of unspecified behavior;

3. Detecting and preventing software attacks using dedicated hardware components. Proposing software countermeasures to protect from hardware vulnerabilities.

The goal of this semester is to promote the scientific, teaching and industrial transfer activities on the security of software/hardware interfaces. Our objective is also to identify scientific and technological challenges in that field and to propose a strategic action plan. To that end, we organized different events:

- The SILM summer school (in collaboration with the GDR "Sécurité Informatique") [0], in July 2019, Rennes, France.

- The SILM workshop [0], in Novembre 2019, Rennes, France

- A regular seminar [0] at Inria, Rennes, France.

We will also animate a working group and publish a white-paper on that topic.

9.1.1.2. Member of the Organizing Committees

Christophe Bidan served as a member of the organization committee of C&ESAR 2019 (26rd Computers & Electronics Security Applications Rendez-vous), November 2019, Rennes, France.

Eric Totel served as a member of the organization committee of the conference RESSI (Rendez-Vous de la Recherche et de l'Enseignement de la Sécurité des Systèmes d'Information), May 2019, Erquy, France.

Gilles Guette served as a member of the organization committee of the conference RESSI (Rendez-Vous de la Recherche et de l'Enseignement de la Sécurité des Systèmes d'Information), May 2019, Erquy, France.

Frédéric Tronel served as a member of the organization committee of SSTIC 2019 (Symposium sur la sécurité des technologies de l'information et des communications) that took place in Rennes, France in June, where it gathered more than 600 participants.

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[0] https://silm.inria.fr/
[0] https://silm-school.inria.fr/
[0] https://silm-workshop.inria.fr/
[0] https://semestres-cyber.inria.fr/en/silm-seminar/

Frédéric served as a member of the organisation committee of SILM Summer School and SILM workshop.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

Jean-François Lalande was the program co-chair of HPCS 2019 (The 2019 International Conference on High Performance Computing & Simulation), July 2019, Dublin, Ireland, IEEE Computer Society.

Jean-François Lalande was the program co-chair of CECC 2019 (Central European Cybersecurity Conference), November 2019, Munich, Germany, ACM Press.

Jean-François Lalande was the program co-chair of IWSMR 2019 workshop (1st International Workshop on Information Security Methodology and Replication Studies), August 2019, Dublin, Ireland, ACM Press.

9.1.2.2. Member of the Conference Program Committees

Ludovic Mé served the Scientific Committee of the FIC 2020.

Frédéric Tronel and Valérie Viet Triem Tong served as a member of the program committee of SSTIC 2019 (Symposium sur la sécurité des technologies de l'information et des communications) June 2019, Rennes, France.

Jean-François Lalande served as a member of the program committee of the international conferences CECC 2019, SecITC 2019, and of international workshops IWCC 2019, CUING 2019, SHPCS 2019, WTMC 2019.

Gilles Guette served as a member of the program committee of the international conferences ICISSP 2019, ISNCC 2019, ITSC 2019.

Guillaume Piolle served as a member of the program committee of the APVP 2019 workshop.

Emmanuelle Anceaume served as a member of the program committee of NCA 2019, EDCC 2019, ICDCS 2019, DEBS 2019, TrustCom 2019, BSCT 2019 and Tokenomics 2019.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Michel Hurfin serves as a member of the editorial board of the JISA Journal (Journal of Internet Services and Applications - Springer).

Jean-François Lalande served as a member of the program committee of the IARIA International Journal on Advances in Security.

9.1.3.2. Reviewer - Reviewing Activities

Michel Hurfin served as a reviewer for the International Journal of Control , the Journal on Discrete Event Dynamic Systems - Theory and Applications, and IEEE Transactions on Dependable and Secure Computing.

Jean-François Lalande served as a reviewer for the following international journals: Journal of Cyber Security and Mobility, IEEE Transactions on Reliability, Journal Elsevier FGCS, IEEE Transactions on Industrial Informatics, MDPI Applied Sciences, Journal of Universal Computer Science.

Eric Totel served as a reviewer for the European Congress of Embedded Real Time Software and Systems.

Pierre Wilke served as a reviewer for the 12th International Conference on Security for Information Technology and Communications (SecITC 2019).

Guillaume Hiet served as a reviewer for the Journal of Computer Security and IEEE Design & Test

9.1.4. Invited Talks

Ludovic Mé. *Cyber security: current challenges*. LIRIMA Franco-African webinar. Sept. 2019.

Jean-François Lalande: *Obfuscated Android Application Development*, CECC 2019, Munich.

Emmanuelle Anceaume: *Abstractions for permissionless distributed systems*, SSL seminar, Nancy, 5 December 2019.

Emmanuelle Anceaume: *Can we safely adapt the construction of permissionless blockchains to user demand ?*, *Journées Futur & Rupture*, ParisTech, 31 March 2019.

Emmanuelle Anceaume: *Beyond the block: a lego blockumentary*, SecDays, 9-10 January 2019.

Emmanuelle Anceaume: *Round table at the "Future & Rupture day"* with Mr Ronan Le Gleut (Sénateur), Mr. Gérard Memmi (Télécom ParisTech), Mr. Nicolas KozaKiewicz (Atos Worldline) - moderator Patrick Duvaut, February, 28 2019.

9.1.5. Scientific Expertise

- Ludovic Mé served the HCERES evaluation committee of the LAAS-CNRS research lab.
- Ludovic Mé has served the Scientific Council of the LIRIMA (Laboratoire International de Recherche en Informatique et Mathématiques Appliquées).
- Valérie Viet Triem Tong has participated in the scientific evaluation comity *Global Security and Cybersecurity* (CES 39) of the French Research Agency (ANR).
- Jean-François Lalande is part of the advisory board of the starting european project "SIMARGL" (H2020 project): Secure Intelligent Methods for Advanced Recognition of Malware and Stegomalware.

9.1.6. Research Administration

- Christophe Bidan was a member of a recruitment committee for an assistant professor position at CentraleSupélec, Rennes.
- Ludovic Mé is deputy scientific director of Inria, in charge of the cyber security domain.
- Valérie Viet Triem Tong was a member of a recruitment committee for an assistant professor position at CentraleSupélec, Rennes.
- Valérie Viet Triem Tong was a member of a recruitment committee for an assistant professor position at IMT, Brest.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Team members are involved in initial and continuing education in CentraleSupélec, a french institute of research and higher education in engineering and science and ESIR (Ecole Supérieure d'Ingénieur de Rennes) the graduate engineering school of the University of Rennes 1.

In these institutions,

- Gilles Guette is director of corporate relations at ESIR;
- Jean-François Lalande is responsible of the major program dedicated to information systems security and the special track Infosec of CentraleSupélec ;
- Frédéric Tronel and Valérie Viet Triem Tong share the responsability of the *mastère spécialisé* (post-graduate specialization degree) in Cybersecurity. This education was awarded **best French master degree** in the category "Master Cybersecurity masters and Security of systems" in the Eduniversal master ranking 2019.

The teaching duties are summed up in table 1 .

	Licence level	Master level	CS†	Univ. Rennes 1	Initial education	Continuing education	2018 -2019
Emmanuelle Anceaume		✓		✓	✓		10
Christophe Bidan	✓	✓	✓		✓	✓	64
Gilles Guette	✓	✓	✓	✓	✓		400
Guillaume Hiet	✓	✓	✓	✓	✓	✓	328 +34*
Jean-François Lalande	✓	✓	✓		✓	✓	326 +70*
Guillaume Piolle	✓	✓	✓	✓	✓	✓	210
Frédéric Tronel	✓	✓	✓	✓	✓	✓	287
Valérie Viet Triem Tong	✓	✓	✓	✓	✓	✓	229
Pierre Wilke	✓	✓	✓		✓	✓	140

Figure 1.

9.2.2. Supervision

HdR defended in 2019, Emmanuelle Anceaume, *Abstractions for permissionless systems*.

PhD defended in 2019: Aurélien Dupin, *Secure multi-partie computations*, started February 2016, supervised by Christophe Bidan(40%), David Pointcheval (30% - ENS) and Renaud Dubois (30% - Thales).

PhD defended in 2019: Aurélien Palisse, *Analyse et détection de logiciels de rançon*, started in 2015, supervised by Jean-Louis Lanet, Colas Le Guernic (DGA) and Hélène Le Bouder (IMT Atlantique);

PhD defended in 2019: Damien Crémilleux, *Visualisation d'évènements de sécurité pour la supervision*, started in October 2015, supervised by Christophe Bidan (30%), Nicolas Prigent (35%), and Frédéric Majorczyk (35% - DGA MI);

PhD defended in 2019: Pernelle Mensah, *Generation and Dynamic Update of Attack Graphs in Cloud Providers Infrastructures*, started in January 2016, supervised by Eric Totel (25%), Guillaume Piolle (25%), Christine Morin (25% - Myriads Inria project), and Samuel Dubus (25% - Nokia);

PhD defended in 2019: Kevin Bukasa, *Vulnerability analysis of embedded systems against physical attacks* , supervised by Jean-Louis Lanet and Ronan Lashermes (SED Inria);

PhD defended in 2019: Ronny Chevalier, *Detecting and Surviving Intrusions - Exploring New Host-Based Intrusion Detection, Recovery, and Response Approaches*, supervised by Guillaume Hiet (50%), David Plaquin (25% - HP) and Ludovic Mé (25%);

PhD in progress: Alexandre Dey, *Continuous Model Learning for Anomaly Detection In the Presence of Highly Adaptative Cyberattacks*, started in November 2019, supervised by Eric Totel (50%) and Ludovic Mé (50%);

PhD in progress: Leopold Ouairy, *Analyse des vulnérabilités dans des systèmes embarqués*, started in 2017, supervised by Jean-Louis Lanet;

PhD in progress: Mathieu Escouteloup *Micro-architectures Sécurisées*, started in 2018, supervised by Jean-Louis Lanet and Jacques Fournier (CEA);

PhD in progress: Mounir Nasr Allah, *Contrôle de flux d'information par utilisation conjointe d'analyse statique et d'analyse dynamique accélérée matériellement*, started in November 2015, supervised by Guillaume Hiet (75%) and Ludovic Mé (25%);

PhD in progress: David Lanoë, *Détection d'intrusion dans les applications distribuées : l'approche comportementale comme alternative à la corrélation d'alertes*, started in October 2016, supervised by Michel Hurfin (50%) and Eric Totel (50%);

PhD in progress: Laetitia Leichtnam, *Visualisation pour la caractérisation d'événements de sécurité*, started in October 2016, supervised by Eric Totel (40%), Nicolas Prigent (30%) and Ludovic Mé (30%);

PhD in progress: Charles Xosanavongsa, *Combining Attack Specification and Dynamic Learning from traces for correlation rule generation*, started in December 2016, supervised by Eric Totel (50%) and Ludovic Mé (50%);

PhD in progress: Pierre Graux, *Security of Hybrid Mobile Applications*, started in October 2017, supervised by Valérie Viet Triem Tong (50%) and Jean-Francçois Lalande (50%);

PhD in progress: Vasile Cazacu, *Calcul distribué pour la fouille de données cliniques*, started February 2017, supervised by Emmanuelle Anceaume (50%) and Marc Cuggia (50%)

PhD in progress: Cedric Herzog, *Simulation d'environnement d'observation afin d'éviter le déploiement de malware sur une station de travail*, started in November 2018, supervised by Jean Louis Lanet (50%), Pierre Wilke (25%) and Valérie Viet Triem Tong (25%);

PhD in progress: Benoit Fournier, *Secure routing in drone swarms*, started in November 2018, supervised by Gilles Guette (50%), Jean Louis Lanet (25%) and Valérie Viet Triem Tong (25%);

PhD in progress: Aimad Berady, *Attacker characterization*, started in November 2018, supervised by Christophe Bidan (25%), Guillaume Carat (25%), Gilles Guette (25%), and Valérie Viet Triem Tong (25%);

PhD in progress: Cyprien Gottstein, *Problématiques de stockage et d'interrogation de très grands graphes répartis dans le contexte de l'internet des objets*, started in October 2018, supervised by Michel Hurfin (50%) and Philippe Raipin Parvedy (50%);

PhD in progress: Tomas Conception Miranda, *Profiling and Visualization Android malware*, started in October 2019, supervised by Jean-François Lalande (34%), Valérie Viet Triem Tong (33%), Pierre Wilke (33%).

9.2.2.1. Supervision of external PhD candidates

PhD in progress: Nicolas Bellec, *Security enhancement in embedded hard real-time systems*, started in October 2019, supervised by Isabelle Puaut (50%), Guillaume Hiet (25%), Frédéric Tronel (25%)

PhD in progress: Kevin Le Bon, *Security enhancement in embedded hard real-time systems*, started in October 2018, supervised by Erven Rohu (30%), Guillaume Hiet (35%), Frédéric Tronel (35%)

9.2.3. Juries

Ludovic Mé was a member of the PhD committee for the following PhD thesis:

Amina Saadaoui, *Formal Techniques for Automatic Detection and Resolution of Security Equipment Misconfigurations*, supervised by Adel Bouhoula and Sihem Guemara, University of Carthage, April 2019.

Amir Wonjiga, *User-Centric Security Monitoring in Cloud Environments*, supervised by Christine Morin and Louis Rilling, University of Rennes 1, May 2019.

Ludovic Mé was a member of the committee for the following HDR defense:

Stephane Mocanu, *Cyberdéfense des infrastructures critiques*, University Grenoble Alpes community, January 2019.

Nizar Kheir, *From Cyber-secure to Cyber-resilient Computer Systems: The way forward*, University of Paris-Saclay, May 2019.

Valérie Viet Triem Tong was a member of the PhD committee for the following PhD thesis:

Xin Ye Model, *Checking Self Modifying Code*, supervised by Tayssir Touili et Jifeng He, University of Paris, Septembre 2019.

Alexandre Dang, *Compilation Sécurisée pour la Protection de la Mémoire*, supervised by Frédéric Besson and Thomas Jensen, University of Rennes 1, December 2019.

Jean-François Lalande was a member of the PhD committee for the following PhD thesis:

M. Guillaume Averlant, *Contrôle d'accès dynamique et architecture de sécurité pour la protection des applications sous Android*, Université Fédérale Toulouse Midi- Pyrénées, october 2th 2019.

9.3. Popularization

9.3.1. Articles and contents

- In books/journals for the general public

  Dis, c'est quoi là haut dans le ciel ? C'est un Linux, mon petit ![39], Viet Triem Tong Valérie, Fournier Benoît, Fournier Guillaume, Ouairy Leopold, Cotret Pascal, Guette Gilles, MISC numéro 104, juillet 2019.

- Online publications

  La cybersécurité aux multiples facettes. Steve Kremer, Ludovic Mé, Didier Rémy et Vincent Roca. Blog binaire (https://www.lemonde.fr/blog/binaire/), 4 juillet 2019.

- White Papers - white Papers for Popularization

  Ludovic Mé co-authored (with S. Kremer, D. Rémy and V. Roca) Inria's White Book on Cybersecurity [37].

9.3.2. Interventions

- Valérie Viet Triem Tong has participated to the *Vive la Recherche* event to promote research activities to engineering students at CentraleSupelec

- Valérie Viet Triem Tong has been involved in an artistic performances involving actors and researcher at the Digital Tech Conference, December Rennes, France.

COMETE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committee

Catuscia Palamidessi is member of:

The Scientific Advisory Board of ANSSI, the French National Cybersecurity Agency. Since 2019.

The Scientific Advisory Board of CISPA, the Helmholtz Center for Information Security. Since 2019.

The Executive Committee of SIGLOG, the ACM Special Interest Group on Logic and Computation. 2014-19.

The Steering Committee of CONCUR, the International Conference in Concurrency Theory. Since 2016.

The Steering Committee of ETAPS, the European Joint Conferences on Theory and Practice of Software. Since 2006.

The Steering Committee of EACSL, the European Association for Computer Science Logics. Since 2015.

The Steering Committee of FORTE, the International Conference on Formal Techniques for Distributed Objects, Components, and Systems. Since 2014.

The IFIP Technical Committee 1 – Foundations of Computer Science. Since 2007.

The IFIP Working Group 1.7 – Theoretical Foundations of Security Analysis and Design. Since 2010.

The IFIP Working Group 1.8 – Concurrency Theory. Since 2005.

Frank D. Valencia is member of:

The steering committee of the International Workshop in Concurrency EXPRESS. Since 2010.

Konstantinos Chatzikokolakis is member of:

The steering committee of the Privacy Enhancing Technologies Symposium. Since 2018.

9.1.2. Scientific events selection committee

9.1.2.1. Chair of conference program committee

Konstantinos Chatzikokolakis:

is serving as PC chair (with Carmela Troncoso as co-chair) of PETS 2020: The 20th Privacy Enhancing Technologies Symposium, July 14 – 18, 2020 Montréal, Canada.

9.1.2.2. Member of conference program committees

Catuscia Palamidessi is/has been a member of the program committees of the following conferences and workshops:

CCS 2020. The ACM Conference on Computer and Communications Security. Orlando, USA, November 9-13 2020.

CSF 2020. The 33rd IEEE Computer Security Foundations Symposium. Boston, MA, USA, June 22-26, 2020.

PETS 2020. The 20th Privacy Enhancing Technologies Symposium. Montréal, Canada, July 14 – 18, 2020.

FORTE 2020. The 40th IFIP International Conference on Formal Techniques for Distributed Objects, Components, and Systems. University of Malta, Valletta, June 15-19, 2020.

FSTTCS 2019. 39th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science. Indian Institute of Technology Bombay, December 11–13, 2019

FACS 2019. The 16th International Conference on Formal Aspects of Component Software. Amsterdam, The Netherlands, 23-25 October 2019.

PETS 2019. The 19th Privacy Enhancing Technologies Symposium. Stockholm, Sweden, July 16 – 20, 2019.

LICS 2019. The Thirty-Fourth Annual ACM/IEEE Symposium on Logic in Computer Science. Vancouver, Canada, 24–27 June 2019.

CSF 2019. The 32nd IEEE Computer Security Foundations Symposium. Hoboken, NJ, USA, June 24-27, 2019.

SAC 2019 (Security track). The 34th ACM/SIGAPP Symposium On Applied Computing. Limassol, Cyprus, 8-12 April 2019.

TML 2020. Towards Trustworthy ML: Rethinking Security and Privacy for ML. Addis Ababa, Ethiopia, April 26, 2020.

EXPRESS/SOS 2020. Combined 27th International Workshop on Expressiveness in Concurrency and 17th Workshop on Structural Operational Semantics. Vienna, Austria, August 31, 2020.

PPAI 2020. The rAAI Workshop on Privacy-Preserving Artificial Intelligence. New York, USA, February 7, 2020.

PPML 2019. Privacy Preserving Machine Learning (ACM CCS 2019 Workshop). London, UK, November 15, 2019.

WPES 2019. Workshop on Privacy in the Electronic Society. London, UK, November 11, 2019.

APVP 2019. Atelier sur la Protection de la Vie Privée. Cap Hornu, France, July 9-11, 2019.

WIL 2019. 3rd Women in Logic Workshop. Cap Hornu, France, Vancouver, Canada, June 23, 2019.

Frank D. Valencia is/has been a member of the program committees of the following conferences and workshops:

CP-DP-19: Doctoral Program of the 25th International Conference on Principles and Practice of Constraint Programming. Stamford, CT, USA, Sep 30 - Oct 4, 2019.

CONCUR 2019: The 30th International Conference on Concurrency Theory. Amsterdam, Netherlands, August 26-31, 2019.

AAMAS 2019: International Conference on Autonomous Agents and Multiagent Systems. Montreal, Canada, 13th-17th of May 2019.

9.1.3. Journals

9.1.3.1. Member of the editorial board

Catuscia Palamidessi is:

(2019-) Member of the Editorial Board of the Journal of Computer Security IOS Press. Since 2019.

Member of the Editorial Board of the Proceedings on Privacy Enhancing Technologies (PoPETs), published by De Gruyter. Since 2017.

Member of the Editorial Board of Mathematical Structures in Computer Science, published by the Cambridge University Press. Since 2006.

Member of the Editorial Board of Acta Informatica, published by Springer. Since 2015.

Member of the Editorial Board of the Electronic Notes of Theoretical Computer Science, published by Elsevier Science. Since 2000.

Member of the Editorial Board of LIPIcs: Leibniz International Proceedings in Informatics, Schloss Dagstuhl–Leibniz Center for Informatics. Since 2014.

Konstantinos Chatzikokolakis is:

Editorial board member of the Proceedings on Privacy Enhancing Technologies (PoPETs), a scholarly journal for timely research papers on privacy.

9.1.3.2. Reviewing

The members of the team regularly review papers for international journals, conferences and workshops.

9.1.4. Other Editorial Activities

Catuscia Palamidessi is/has been:

Co-editor (with Anca Muscholl and Anuj Dawar) of the special issue of Logical Methods in Computer Science dedicated to selected papers of ICALP 2017.

Co-editor (with Alexandra Silva and Natarajan Shankar) of the special issue of Logical Methods in Computer Science dedicated to selected papers of LICS 2015 and LICS 2016.

Frank D. Valencia has been:

Co-editor of the special issue on Mathematical Structures in Computer Science dedicated to the best papers from the 12th International Colloquium on Theoretical Aspects of Computing.

9.1.5. Participation in other committees

Catuscia Palamidessi has been serving in the following committees:

External Member of the committee for the promotion to full professor of Prof. Kévin Huguenin. HEC Lausanne, Switzerland.

Member of the committee for associate professor positions in the Datalogi Dept., Aalborg Univ., Denmark. 2019.

Member of the panel for the Research Evaluation for Development 2019 (RED19) of the Department of Computer Science and Engineering at the University of Gothenburg, Sweden.

Chair of the Nominating Committee for the 2019 renewal of the office holders of SIGLOG, the ACM Special Interest Group on Logic and Computation.

Member of the committee for the Alonzo Church Award for Outstanding Contributions to Logic and Computation. From 2015. In 2018 Palamidessi is the president of this committee.

Reviewer for the projects proposal for the program PRIN, sponsored by the Italian MIUR ("Ministero dell'Istruzione, dell'Università e della Ricerca"). Since 2005.

Member of the EAPLS PhD Award Committee. From 2010.

9.1.6. Invited talks

Catuscia Palamidessi has given invited talks at the following conferences and workshops:

Journées Nationales du GDR Sécurité Informatique. Paris, France, June 2019.

MFPS XXXV, special session on Probabilistic Programming. London, UK, June 2019.

AI & Society: From principles to practice. CIFAR-UKRI-CNRS workshop. London, UK, June 2019.

5th France-Japan Cybersecurity workshop}. Kyoto, Japan, April 2019.

Frank Valencia has given the following invited talk:

- EXPRESS/SOS 2019. Combined 26th International Workshop on Expressiveness in Concurrency and 16th Workshop on Structural Operational Semantics. Amsterdam, Netherlands, August 26, 2019.

9.1.7. Service

Catuscia Palamidessi has served as:

Member of the committee for the assignment of the Inria International Chairs. From 2017.

Member of the Commission Scientifique du Centre de Recherche Inria Saclay. From 2018.

Member of the hiring committee for Maitre de Conference, Ecole Polytechnique, 2019.

Frank Valencia has served as:

Directeur adjoint de l'UMR 7161, le Laboratoire d'Informatique de l'Ecole Polytechnique (LIX). May 2016 - Nov 2019.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master : Frank D. Valencia has been teaching the undergraduate course "Computability", 45 hours, at the Pontificia Universidad Javeriana de Cali, Colombia. July 27 - Nov 1, 2019.

Master : Frank D. Valencia has been teaching the masters course "Foundations of Computer Science", 45 hours, at the Pontificia Universidad Javeriana de Cali, Colombia. Jan 27 - Jun 1, 2019

Master : Catuscia Palamidessi has been teaching the masters course on "Foundations of Privacy", 24 hours, at the MPRI, Sept-Nov 2019.

9.2.2. Supervision

PhD in progress (2019-) Federica Granese. Co-supervised Catuscia Palamidessi and Daniele Gorla. Thesis subject: Security in Machine Learning.

PhD in progress (2019-) Ganesh Del Grosso. Co-supervised by Catuscia Palamidessi and Pablo Piantanida. Thesis Subject: Privacy in Machine Learning.

PhD in progress (2018-) Natasha Fernandez. Co-supervised Konstantinos Chatzikokolakis, Catuscia Palamidessi, and Annabelle McIver. Thesis subject: Privacy Protection Methods for Textual Documents.

PhD in progress (2018-) Santiago Quintero. Co-supervised by Frank Valencia and Catuscia Palamidessi. Thesis Subject: Foundations of Group Polarization.

PhD in progress (2017-) Marco Romanelli. Co-supervised by Konstantinos Chatzikokolakis, Catuscia Palamidessi, and Moreno Falaschi (University of Siena, Italy). Thesis subject: Application of Information Flow to feature selection in machine learning.

PhD in progress (2017-) Anna Pazii. Co-supervised by Konstantinos Chatzikokolakis and Catuscia Palamidessi. Thesis subject: Local Differential Privacy.

PhD in progress (2017-) Sergio Ramirez. Co-supervised by Frank Valencia and Camilo Rueda, Universidad Javeriana Cali. Thesis subject: Quantitive Spatial Constraint Systems.

9.2.3. Juries

Catuscia Palamidessi has been reviewer and member of the board at the PhD defense for the thesis of the following PhD student:

Mohamed Maouche (INSA, Lyon). PhD thesis reviewer and member of the committee board at the PhD defense. Title of the thesis: *Protection against Re-identification Attacks in Location Privacy*. Defended in November 2019.

Raphaëlle Crubrillé (IRIF, Université Paris Diderot). Member of the committee board at the PhD defense. Title of the thesis: *Distances comportementales pour les programmes probabilistes d'ordre supérieur*. Defended in June 2019.

Vittoria Nardone (University of Sannio, Italy). PhD thesis reviewer. Title of the thesis: *Formal Methods for Android Applications*. Supervised by Antonella Santone. Defended in January 2019.

9.2.4. Other didactical duties

Catuscia Palamidessi has been:

External member of the scientific council for the PhD in Computer Science at the University of Pisa, Italy. Since 2012.

9.3. Popularization

9.3.1. Education

Konstantinos Chatzikokolakis and Catuscia Palamidessi have designed, and coordinate, a course on the Foundations of Privacy at the MPRI, the Master Parisien pour la Recherche en Informatique. University of Paris VII. A.Y. Since 2015.

Catuscia Palamidessi has been:

- Invited speaker at PLMW@POPL 2019, the Programming Logic Mentoring Workshop 2019 (affiliated to POPL 2019). This workshop aims at encouraging graduate students and senior undergraduate students to pursue careers in programming language research, and at educating them on the research career.

- A participant in the round table on fairness, Interpretability, and Privacy in AI at the CIFAR-UKRI-CNRS workshop. London, June 2019.

Frank Valencia has:

- Welcomed the students of bachelor program of École Polytechnique to Inria center. Sept 12, 2019.

- Welcomed visitors from ACOFI, the Colombian Association of Faculties of Engineering to Inria center. April 8, 2019.

9.3.2. Interventions

Catuscia Palamidessi has given an invited talk at:

- Safety and AI. DATAIA Workshop. Palaiseau, France, September 2019.

<p style="text-align:center">**CONVECS Project-Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- H. Garavel is a member of the model board [0] of MCC (*Model Checking Contest*). In 2019, he helped preparing new models (especially those in the NUPN format) and verified, using the CÆSAR.BDD tool of CADP, the forms describing all benchmark models submitted by the contest participants; this revealed a number of inconsistencies. The results of MCC'2019 have been published online [44].

- Together with Peter Höfner (Data61, CSIRO, Sydney, Australia), H. Garavel set up a model repository (hosted on the Gforge of Inria) to collect and archive formal models of real systems; this infrastructure is used by the series of MARS workshops [0]. This repository currently contains 21 models, among which 5 were deposited by CONVECS.

- G. Salaün is member of the steering committee of the ACM SAC-SVT (*Symposium of Applied Computing – Software Verification and Testing Track*) conference series since 2018.

- G. Salaün is member of the steering committee of the SEFM (*International Conference on Software Engineering and Formal Methods*) conference series since 2014.

- G. Salaün is member of the steering committee of the FOCLASA (*International Workshop on Foundations of Coordination Languages and Self-Adaptative Systems*) workshop series since 2011.

10.1.1.2. Member of the Organizing Committees

- L. Marsso and A. Muroor Nadumane were publicity chairs (also in charge of the conference Web site and social media feeds) for SEFM'2019 (*17th International Conference on Software Engineering and Formal Methods*), Oslo, Norway, September 16–20, 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- G. Salaün was co-chair of SEFM'2019.

10.1.2.2. Member of the Conference Program Committees

- H. Garavel was program committee member of FMICS'2019 (*24rd International Conference on Formal Methods for Industrial Critical Systems*), Amsterdam, The Netherlands, August 30–31, 2019.

- R. Mateescu was program committee member of IFIP-ICTSS'2019 (*31st IFIP International Conference on Testing Software and Systems*), Paris, France, October 15–17, 2019.

- G. Salaün was program committee member of SAC-SVT'2019 (*34th ACM Symposium on Applied Computing - Software Verification and Testing Track*), Limassol, Cyprus, April 8–12, 2019.

- G. Salaün was program committee member of FSEN'2019 (*8th IPM International Conference on Fundamentals of Software Engineering*), Tehran, Iran, May 1–3, 2019.

- G. Salaün was program committee member of COORDINATION'2019 (*21st International Conference on Coordination Models and Languages*), Lyngby, Denmark, June 18–21, 2019.

- G. Salaün was program committee member of Microservices'2019, Dortmund, Germany, February 19–21, 2019.

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[0]http://mcc.lip6.fr/models.php
[0]http://www.mars-workshop.org/

- G. Salaün was program committee member of COMPSAC-ITIP'2019 and COMPSAC-SETA'2019 (*IEEE International Conference on Computers, Software, and Applications – IT in Practice, and Software Engineering Technologies and Applications*), Wisconsin, USA, July 15–19, 2019.

- G. Salaün was program committee member of HPCS-4PAD'2019 and HPCS-SERCO'2019 (*6th International Symposium on Formal Approaches to Parallel and Distributed Systems, and 3rd Special Session on High Performance Services Computing and Internet Technologies*), Dublin, Ireland, July 15–19, 2019.

- G. Salaün was program committee member of FACS'2019 (*16th International Conference on Formal Aspects of Component Software*), Amsterdam, The Netherlands, October 23–25, 2019.

- G. Salaün was program committee member of FOCLASA'2019 (*17th International Workshop on Coordination and Self-Adaptativeness of Software Applications*), Oslo, Norway, September 17, 2019.

- G. Salaün was program committee member of DATAMOD'2019 (*8th International Symposium "From Data to Models and Back"*), Porto, Portugal, October 7–8, 2019.

10.1.2.3. Reviewer

- R. Mateescu was a reviewer for the Festschrift in honor of Stefania Gnesi.

- A. Muroor Nadumane was a reviewer for SAC-SVT'2020, FACS'2019, SEFM'2019, COMPSAC-SETA'2019.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- H. Garavel is an editorial board member of STTT (*Springer International Journal on Software Tools for Technology Transfer*).

10.1.3.2. Reviewer - Reviewing Activities

- F. Lang and A. Muroor Nadumane were reviewers for STTT.

- R. Mateescu was a reviewer for ISSE (*Innovations in Systems and Software Engineering*), IST (*Information and Software Technology*), LMCS (*Logical Methods in Computer Science*), and SCP (*Science of Computer Programming*).

- G. Salaün was a reviewer for JISA (*Journal of Internet Services and Applications*), JLAMP (*Journal of Logical and Algebraic Methods in Programming*), JSME (*Journal of Software: Evolution and Process*), LMCS, and SCP.

10.1.4. Software Dissemination and Internet Visibility

The CONVECS project-team distributes several software tools, among which the CADP toolbox.

In 2019, the main facts are the following:

- We prepared and distributed twelve successive versions (2019-a to 2019-l) of CADP.

- We were requested to grant CADP licenses for 340 different computers in the world.

The CONVECS Web site [0] was updated with scientific contents, announcements, publications, etc.

By the end of December 2019, the CADP forum [0], opened in 2007 for discussions regarding the CADP toolbox, had over 435 registered users and over 1940 messages had been exchanged.

Also, for the 2019 edition of the Model Checking Contest, one family of models generated using CADP (totalling 16 Nested-Unit Petri Nets) was provided.

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[0]http://convecs.inria.fr
[0]http://cadp.inria.fr/forum.html

Other research teams took advantage of the software components provided by CADP (e.g., the BCG and OPEN/CAESAR environments) to build their own research software. We can mention the following developments:

- The OCARINA Tool and its Extension AADL2LNT for Analysing AADL Descriptions [49]
- The LFD-MPI Tool for Lightweight Formal Development of MPI Applications [52], [53]
- The FTRES Tool for Rare Event Simulation in Dynamic Fault Trees [54]
- Formal Analysis of Security Guidelines for Program Certification [55]

Other teams also used the CADP toolbox for various case studies:

- Applying Automata Learning to Embedded Control Software [50]
- Model Checking Based Approach for Compliance Checking [46]
- Finding Conservative Schema Evolutions by Analysing API Changes [51]
- Selection of Model Checking Strategies using Machine Learning [42]
- Verifying Complex Software Control Systems from Test Objectives [29]
- Designing Safe Synchronous Reactive Systems [30]

10.1.5. Invited Talks

- H. Garavel participated in the workshop "*Advancing Verification Competitions as a Scientific Method*" organized by the Lorentz Center (Leiden, The Netherlands) on February 18–22, 2019. He gave a lecture entitled "*Managing Large Collections of Benchmarks: An Experiment Report*".
- H. Garavel presented a retrospective of the Rewrite Engines Competitions at the TOOLympics event at ETAPS 2019, Prague, Czech Republic, April 6–7, 2019.
- H. Garavel was one of the six invited speakers at the panel discussion "*Moore's Law, and More?*" organized at the occasion of the 25th Anniversary of the TACAS conference, Prague, Czech Republic, April 7, 2019.
- H. Garavel gave a highlight talk entitled "*From Safe Petri Nets to NUPNs*" at the 8th IFIP WG 1.8 Workshop on Trends in Concurrency Theory, Amsterdam, The Netherlands, August 31, 2019.
- H. Garavel gave a seminar entitled "*Converting Safe Petri Nets to NUPNs*" at Saarland University, Germany, on September 26, 2019.
- R. Mateescu gave a talk entitled "*The MCL Language for Temporal and Probabilistic Analysis of Concurrent Systems*" at the Languages, Semantics, and Compilation seminar of the LIP laboratory, Lyon, September 19, 2019.
- R. Mateescu visited the Gran Sasso Science Institute (L'Aquila, Italy) on November 4–7, 2019. He gave a talk entitled "*An Action-based Model Checking Language for Concurrent Systems*".
- A. Muroor Nadumane gave a talk entitled "*Advanced Rule-based Composition and Deployment for Web of Things*" at the Inria-Nokia Bell Labs meeting held at Inria Rennes on June 11, 2019.

10.1.6. Research Administration

- H. Garavel was appointed to the Executive Commission in charge of International Relations at COMUE Université Grenoble Alpes.
- F. Lang is chair of the "*Commission du développement technologique*", which is in charge of selecting R&D projects for Inria Grenoble – Rhône-Alpes, and giving an advice on the recruitment of temporary engineers.
- R. Mateescu is the scientific correspondent of the European and International Partnerships for Inria Grenoble – Rhône-Alpes.
- R. Mateescu is a member of the *Comité d'orientation scientifique* for Inria Grenoble – Rhône-Alpes.
- R. Mateescu is a member of the "*Bureau*" of the LIG laboratory.

- G. Salaün is a member of the Scientific Committee of the PCS (*Pervasive Computing Systems*) action of the PERSYVAL Labex.
- W. Serwe is (together with Laurent Lefèvre from the AVALON Inria project-team) correspondent in charge of the 2019 Inria activity reports at Inria Grenoble – Rhône-Alpes.
- W. Serwe is a member of the "*Comité de Centre*" at Inria Grenoble – Rhone-Alpes.
- W. Serwe is "*chargé de mission*" for the scientific axis *Formal Methods, Models, and Languages* of the LIG laboratory.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

CONVECS is a host team for the computer science master MOSIG (*Master of Science in Informatics at Grenoble*), common to Grenoble INP and Université Grenoble Alpes (UGA).

In 2019, we carried out the following teaching activities:

P. Bouvier supervised a group of seven two-person teams of 2nd year students in the context of the "*projet informatique*" (31 hours "*équivalent TD*", consisting of lab exercises and supervision) at PHELMA.

H. Garavel was a jury member for the MOSIG master defenses in June and September 2019.

F. Lang and R. Mateescu gave a lecture on "*Modeling and Analysis of Concurrent Systems: Models and Languages for Model Checking*" (27 hours "*équivalent TD*") to third year students of ENSIMAG and second year students of the MOSIG.

F. Lang gave a course on "*Formal Software Development Methods*" (7.5 hours "*équivalent TD*") in the framework of the "*Software Engineering*" lecture given to first year students of the MOSIG.

A. Muroor Nadumane gave a course on "*Object Oriented Programming*" (42 hours "*équivalent TD*") at the department MMI of IUT1 (UGA).

G. Salaün taught about 250 hours of classes (algorithmics, Web development, object-oriented programming, iOS programming) at the department MMI of IUT1 (UGA). He is also headmaster of the "*Services Mobiles et Interface Nomade*" (SMIN) professional licence (third year of university) at IUT1/UGA.

W. Serwe gave the part on "*Behavioural Testing*" (9 hours "*équivalent TD*") of the course "*Verification and Test Theories*" to second year students of the MOSIG.

W. Serwe supervised a group of six teams in the context of the "*projet Génie Logiciel*" (55 hours "*équivalent TD*", consisting in 16 hours of lectures, plus supervision and evaluation), ENSIMAG, January 2019.

10.2.2. Supervision

PhD: Lina Marsso, "*Formal Methods for Testing Networks of Controllers*", Université Grenoble Alpes, December 10, 2019, R. Mateescu, W. Serwe, and I. Parissis

PhD: Umar Ozeer, "*Autonomic Resilience of Applications in a Largely Distributed Cloud Environment*", Université Grenoble Alpes, December 11, 2019, L. Letondeur, G. Salaün, F.-G. Ottogalli, and J.-M. Vincent

PhD in progress: Pierre Bouvier, "*Implémentation et vérification des langages concurrents de nouvelle génération*", Université Grenoble Alpes, since October 2019, H. Garavel and R. Mateescu

PhD in progress: Ajay Muroor Nadumane, "*Softwarization of Everything: IoT Service Composition*", Université Grenoble Alpes, since October 2017, G. Salaün, R. Mateescu, and M. Le Pallec

10.2.3. Juries

- F. Lang was PhD committee member of Sander de Putter's PhD thesis, entitled "*Verification of Concurrent Systems in a Model-Driven Engineering Workflow*", defended at Technische Universiteit Eindhoven (The Netherlands) on January 28, 2019.

- R. Mateescu was reviewer of The Anh Pham's PhD thesis, entitled "*Efficient State-Space Exploration for Asynchronous Distributed Programs*", defended at ENS Rennes on December 6, 2019.

- G. Salaün was committee president of Xavier Etchevers's Habilitation thesis, entitled "*Evolution du déploiement automatisé d'applications : des infrastructures cloud aux enjeux de l'agilité et de l'intelligence ambiante*", defended at Université Grenoble Alpes on November 29, 2019.

- G. Salaün was PhD committee president of Raphaël Jackse's PhD thesis, entitled "*Interactive Runtime Verification*", defended at Université Grenoble Alpes on December 18, 2019.

10.3. Popularization

10.3.1. Interventions

- R. Mateescu has participated to the "*Journée Transfo : Plongez dans le monde du numérique*" organized at Inria Montbonnot on January 24, 2019.

- R. Mateescu has participated to the "*Fête de la Science*" organized at Inria Montbonnot on October 12, 2019.

<div align="center">**CORSE Project-Team**</div>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

- Fabrice Rastello: Steering Committee ACM/IEEE CGO; Steering Committee "Journées française de la compilation"

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

- Frédéric Desprez: IPDPS, HPC, CCGRID, ParCo, ICA3PP, CloudCom
- François Broquedis: IPDPS, COMPAS
- Fabrice Rastello: ACM SIGPLAN/SIGBED LCTES 2019; IEEE/ACM SIGPLAN CGO 2020; IEEE/ACM SIGARCH PACT 2019; CADO 2019
- Yliès Falcone: AFADL'19, SHPCS'19, IFIP-ICTSS'19, RV'19, FDL'19, 4PAD'19, TASE'19, SAC-SVT'19
- Manuel Selva: ReCoSoC'19

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Frédéric Desprez: IEEE Transactions on Cloud Computing (associate editor)

9.1.3.2. Reviewer - Reviewing Activities

- Frédéric Desprez: ACM Transactions on Internet of Things, IEEE Access
- Fabrice Rastello: ACM TACO, ACM TOPLAS

9.1.4. Leadership within the Scientific Community

- Frédéric Desprez: co-présidence du prix de thèse annuel du GDR Réseaux et Systèmes Distribués (RSD) en collaboration avec l'association ACM SIGOPS France (ASF)
- Frédéric Desprez: Scientific committee of ORAP
- Frédéric Desprez: Technical Committee of GENCI

9.1.5. Scientific Expertise

- Frédéric Desprez: Genci: attribution heures de calcul CT6
- Frédéric Desprez: Groupe de travail "Cloud pour l'IA" d'Allistène
- Frédéric Desprez: Comité des sages IRIT
- Yliès Falcone: Review for ANR call for projects

9.1.6. Research Administration

- Frédéric Desprez: Deputy Scientific Director at INRIA
- Frédéric Desprez: Director of the GIS GRID5000
- Frédéric Desprez: Conseil Scientifique ESIEE Paris
- Frédéric Desprez: Groupe de travail "Infrastructures" Inria

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

License 3: François Broquedis, Imperative programming using python, 40 hours, Grenoble Institute of Technology (Ensimag)

License 3: François Broquedis, Introduction to UNIX, 20 hours, Grenoble Institute of Technology (Ensimag)

License 3: François Broquedis, Computer architecture, 40 hours, Grenoble Institute of Technology (Ensimag)

License 3: François Broquedis, C programming, 80 hours, Grenoble Institute of Technology (Ensimag)

Master 1: François Broquedis, Operating systems and concurrent programming, 30 hours, Grenoble Institute of Technology (Ensimag)

Master 1: François Broquedis, Operating Systems Development Project - Fundamentals, 20 hours, Grenoble Institute of Technology (Ensimag)

Master 1: François Broquedis, Object-Oriented Programming, 20 hours, Grenoble Institute of Technology (Ensimag)

François Broquedis is in responsible of the first year of Ensimag

Master: Florent Bouchez Tichadou, Algorithmic Problem Solving, 41 hours, M1 MoSIG

Licence: Florent Bouchez Tichadou, Algorithms languages and programming, 160 hours, L2 UGA

Licence: Florent Bouchez Tichadou was responsible of the second year (L2) of INF (informatique) and MIN (mathématiques et informatique) students at UGA from January to June, eq. 42 hours

Licence: Florent Bouchez Tichadou, Software Project, 10 hours, L3 UGA

Data Asperger, Florent Bouchez Tichadou, Formation d'autistes Asperger aux métiers du développement informatique et analyse des données. Bloc Algorithmique. 20 hours, GEM & Le Campus Numérique.

Master 1: Yliès Falcone, Programming Language Semantics and Compiler Design, MoSIG and Master informatique, 96 hours

License: Yliès Falcone, Languages and Automata, Univ. Grenoble Alpes, 105 hours

Master: Yliès Falcone, was co-responsible of the first year of the International Master of Computer Science (Univ. Grenoble Alpes and INP ENSIMAG) until August 2019.

License 3: Manuel Selva, Imperative programming using python, 60 hours, Grenoble Institute of Technology (Ensimag)

License 3: Manuel Selva, Introduction to UNIX, 15 hours, Grenoble Institute of Technology (Ensimag)

Master 1: Manuel Selva, Operating systems and concurrent programming, 15 hours, Grenoble Institute of Technology (Ensimag)

9.2.2. Supervision

PhD: Georgios Christodoulis, Adaptation of a heterogeneous run-time system to efficiently exploit FPGA, December 5, 2019, advised by Frederic Desprez, Olivier Muller (TIMA/SLS), and François Broquedis

PhD in progress: Mathieu Stoffel, Static and dynamic approaches for the optimization of the energy consumption associated with applications of the High Performance Computing (HPC) field, February 2018, advised by François Broquedis, Frédéric Desprez, Abdelhafid Mazouz (Atos/Bull) and Philippe Rols (Atos/Bull)

PhD: Fabian Grüber, Performance Debugging Toolbox for Binaries: Sensitivity Analysis and Dependence Profiling, December 17 2019, advised by Fabrice Rastello

PhD: Raphaël Jakse, Interactive Runtime Verification, December 18 2019, advised by Jean-François Méhaut and Yliès Falcone.

PhD in progress: Auguste Olivry, Data Locality and Parallelism Optimization for Linear and Multilinear Algebra, September 2019, advised by Fabrice Rastello.

PhD in progress: Nicolas Tollenaere, Optimizing ML algorithms for MPPA Asics, April 2019, advised by Fabrice Rastello.

PhD in progress: Nicolas Derumigny, Automatic generation of performance models for heterogeneous architectures, September 2019, advised by Fabrice Rastello.

PhD in progress: Théo Barollet, Problem-based learning: automatic generation and recommendation of programming exercises, September 2019, advised by Florent Bouchez Tichadou and Fabrice Rastello.

9.2.3. Juries

9.2.3.1. Fabrice Rastello

Fabian Grüber, advisor, *Performance Debugging Toolbox for Binaries: Sensitivity Analysis and Dependence Profiling*, PhD, Université Grenoble Alpes, December 17 2019

Maxime Schmitt, reviewer, *Automatic Generation of Adaptative Codes*, PhD, Université de Strasbourg, September 30 2019

9.2.3.2. Frédéric Desprez

Michael Mercier, examiner, *Contribution to High Performance Computing and Big Data Infrastructure Convergence*, PhD, Université Grenoble Alpes, January 07 2019

Alexandre Veith, examiner, *Quality of Service Aware Mechanisms for (Re)Configuring Data Stream Processing Applications on Highly Distributed Infrastructure*, PhD, Lyon, September 23 2019

Nathanaël Cheriere, reviewer, *Towards Malleable Distributed Storage Systems From Models to Practice*, PhD, Ecole normale supérieure de Rennes, November 5 2019

Ayham Kassab, reviewer/president, *Optimisation de l'ordonnancement de calculs parallèles et de l'engagement de sources d'énergie renouvelable pour l'alimentation des centres de calcul*, PhD, Université de Bourgogne Franche Comté, November 14 2019

Georgios Christodoulis, advisor, *Adaptation of a heterogeneous run-time system to efficiently exploit FPGA*, PhD, Université Grenoble Alpes, December 5, 2019

9.2.3.3. François Broquedis

- Georgios Christodoulis, advisor, *Adaptation of a heterogeneous run-time system to efficiently exploit FPGA*, PhD, Université Grenoble Alpes, December 5, 2019

9.2.3.4. Yliès Falcone

- Raphaël Jakse, advisor, *Interactive Runtime Verification*, PhD, Université Grenoble Alpes, December 18 2019.

9.3. Popularization

9.3.1. Education

DIU EIL, Florent Bouchez Tichadou, Formation des enseignants des lycées suite à la réforme du Bac et l'introduction de l'option informatique en 1ère et Terminale (NSI). Bloc algorithmique par Apprentissage Par Problèmes (APP). Académie de Grenoble ainsi que les enseignants dans les lycées français à l'étranger.

<div style="text-align:center; color:red; font-weight:bold">DATASHAPE Project-Team</div>

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

- F. Chazal was co-organiser of the Geometric Data Analysis conference at the Stevanovich Center for Financial Mathematics, Chicago, May 2019.
- F. Chazal was co-organiser of the conference New Horizons in Computational Geometry and Topology, Sophia-Antipolis, September 2019.

8.1.2. Scientific Events: Selection

8.1.2.1. Chair of Conference Program Committees

- Steve Oudot was chair of the program committee for the Young Researchers Forum at the International Symposium on Computational Geometry (SoCG) 2019.

8.1.2.2. Member of the Conference Program Committees

- Jean-Daniel Boissonnat was a member of the Organizing Committee of the International Conference on Curves and Surfaces 2019.
- Clément Maria was a member of the Program Committee of the International Symposium on Computational Geometry (SoCG), Portland, USA, June 2019.
- David Cohen-Steiner was a member of the Program Committees of SGP'19 and SMI'19.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

Jean-Daniel Boissonnat is a member of the Editorial Board of *Journal of the ACM*, *Discrete and Computational Geometry*, *International Journal on Computational Geometry and Applications*.

Frédéric Chazal is a member of the Editorial Board of *SIAM Journal on Imaging Sciences*, *Discrete and Computational Geometry (Springer)*, *Graphical Models (Elsevier), and Journal of Applied and Computational Topology (Springer)*.

Frédéric Chazal is a member of the Scientific Board of Journal of Applied and Computational Topology (Springer).

Steve Oudot is a member of the Editorial Board of *Journal of Computational Geometry*.

8.1.4. Invited Talks

Frédéric Chazal, Geometry of Big Data, Institute of Pure and Applied Mathematics at UCLA, Los Angeles, April 2019.

Frédéric Chazal, Workshop on Data Science, Fundaçao Getulio Vargas, Rio de Janeiro, April 2019.

Frédéric Chazal, SUMTOPO 2019, Topology in Data Science, Johannesburg, June 2019.

Frédéric Chazal, New Horizons in Computational Geometry and Topology, Sophia-Antipolis, September 2019.

Frédéric Chazal, Seminar@System X, Saclay, June 2019.

Clément Maria, Monash University, Australia.

Clément Maria, New Horizons in Computational Geometry and Topology, Sophia-Antipolis, September 2019.

Clément Maria, Applied Algebraic Topology Research Network Seminar, October 2019.

Clément Maria, Dagstuhl Seminar 19352 "Computation in Low-Dimensional Geometry and Topology", August 2019.

Clément Maria, 2ème Demi-journée Pole Calcul - Topologie et Géométrie du Calcul - LIS Marseille, June 2019.

Steve Oudot, Workshop on computational applications of quiver representations: TDA and QPA, Bielefeld University, April 2019.

Steve Oudot, Minisymposium on Algebraic Geometry in Topological Data Analysis, SIAM Conference on Applied Algebraic Geometry, Bern, July 2019.

Steve Oudot, Summer Conference on Topology and its Applications, Johannesburg, July 2019.

Steve Oudot, Spires workshop: from theory to applications of TDA, Oxford, September 2019.

8.1.5. Leadership within the Scientific Community

Frédéric Chazal is co-responsible, with S. Arlot (Paris-Sud Univ.), of the "programme Maths-STIC" of the Labex Fondation Mathématique Jacques Hadamard (FMJH).

Frédéric Chazal is a member of the "Comité de pilotage" of the SIGMA group at SMAI.

Steve Oudot is co-head with Luca Castelli Aleardi (École polytechnique) of the GT GeoAlgo within the GdR-IM.

8.1.6. Research Administration

Marc Glisse is president of the CDT at Inria Saclay.

Steve Oudot is vice-president of the Commission Scientifique at Inria Saclay.

Clément Maria is a member of the CDT at Inria Sophia Antipolis-Méditerranée.

Clément Maria, responsable RAweb pour Datashape.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master: Frédéric Chazal and Quentin Mérigot, Analyse Topologique des Données, 30h eq-TD, Université Paris-Sud, France.

Master: Marc Glisse and Clément Maria, Computational Geometry Learning, 36h eq-TD, M2, MPRI, France.

Master: Frédéric Cazals and Frédéric Chazal, Geometric Methods for Data Analysis, 30h eq-TD, M1, École Centrale Paris, France.

Master: Frédéric Chazal and Julien Tierny, Topological Data Analysis, 38h eq-TD, M2, Mathématiques, Vision, Apprentissage (MVA), ENS Paris-Saclay, France.

Course on TDA at the Statistics with Geometry and Topology Conference 2019, 4hCM, Toulouse, France.

Master: Steve Oudot, Topological data analysis, 45h eq-TD, M1, École polytechnique, France.

Master: Steve Oudot, Data Analysis: geometry and topology in arbitrary dimensions, 24h eq-TD, M2, graduate program in Artificial Intelligence & Advanced Visual Computing, École polytechnique, France.

Undergrad-Master: Steve Oudot, Algorithms for data analysis in C++, 22.5h eq-TD, L3/M1, École polytechnique, France.

8.2.2. Supervision

PhD : Alba Chiara de Vitis, Kernel Methods for High Dimensional Data Analysis [12]. Université Côte d'Azur. May 28, 2019. Jean-Daniel Boissonnat and David Cohen-Steiner.

PhD : Sergei Kachanovich, Meshing submanifolds using Coxeter triangulations [11]. Université Côte d'Azur. October 23, 2019. Jean-Daniel Boissonnat.

PhD: Yitchzak Solomon, Inverse problems in topological data analysis, Brown University. Defended in May 2019. Jeff Brock (Yale University) and Steve Oudot.

PhD in progress: Raphaël Tinarrage, Persistence and stability of nerves in measured metric spaces for Topological Data Analysis, started September 1st, 2017, Frédéric Chazal and Marc Glisse.

PhD in progress: Louis Pujol, Partitionnement de données cytométriques, started Novermber 1st, 2019, Pascal Massart and Marc Glisse.

PhD in progress: Bertrand Beaufils, Méthodes topologiques et apprentissage statistique pour l'actimétrie du piéton à partir de données de mouvement, Frédéric Chazal and Bertrand Michel (Ecole Centrale de Nantes).

PhD in progress: Vincent Divol, statistical aspects of TDA, started September 1st, 2017, Frédéric Chazal and Pascal Massart (LMO).

PhD in progress: Etienne Lasalle, TDA for graph data, started September 1st, 2019, Frédéric Chazal and Pascal Massart (LMO).

PhD in progress: Alex Delalande, Measure embedding with Optimal Transport and applications in Machine Learning, started December 1st, 2019, Frédéric Chazal and Quentin Mérigot (LMO).

PhD in progress: Owen Rouillé, started September 2018, co-advised by C. Maria and J-D. Boissonnat.

PhD in progress: Nicolas Berkouk, Categorification of topological graph structures, started November 1st, 2016, Steve Oudot.

PhD in progress: Théo Lacombe, Statistics for persistence diagrams using optimal transport, started October 1st, 2017. Marco Cuturi (ENSAE & Google Brain) and Steve Oudot.

8.2.3. *Juries*

Clément Maria was a member of the jury attributing the Gilles Kahn PhD award, from the SIF and the Academy of Science, Nov. 2019.

Steve Oudot was reviewer and committee member for the PhD defence of Hannah Schreiber, October 2019.

8.3. Popularization

8.3.1. *Interventions*

- Frédéric Chazal, Un exemple de dispositif dédié aux études cliniques. Seminar on AI, Haute Autorité de Santé, September 2019.

<p align="center" style="color:red">**DATASPHERE Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

Stéphane Grumbach has been co-director of IXXI since 2014. He is also involved in the Anthropocene Group at ENS Lyon, which promotes interdisciplinary research and teaching activities on issues related to the adaptation to the changes of the natural ecosystem. He is involved in various initiatives to promote scientific knowledge to a wider audience, as well as in cooperation with public administrations (local and national) to face the challenges of the digital revolution.

9.1.1. Scientific Events: Selection

9.1.1.1. Member of the Conference Program Committees

Kavé Salamatian has been TPC member for the below conferences:
- Infocom 2020
- Infocom 2019
- Aintec 2019

9.1.2. Journal

9.1.2.1. Reviewer - Reviewing Activities

Kavé Salamatian has been reviewer for the below journals:
- IEEE/ACM Transactions on Networking
- IEEE Transactions on Communication
- IEEE Transactions on Networked Systems Management
- Computer Communications
- IEEE transactions on Information Theory

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Kavé Salamatian is professor at Université de Savoie.

Stéphane Grumbach is lecturer at SciPo Paris, where he teaches Master courses (M1, M2) on the Economy of Data. He also regularly gives lectures in universities, including ENA, ENS Lyon, Ecole centrale, Insa Lyon, etc.

9.2.2. Supervision

PhD: Jingxiu Su, DNS data analysis, 2016-2019, directeur de thèse Kave Salamatian. Defense 30/12/2019

PhD in progress: Colin Gerard, Stratégies d'influence de la Russie sur les réseaux sociaux, 2018 PhD in progress with Institut Français de Géopolitique, sponsored by DGA, co-Directors: Frederick Douzet, Kavé Salamatian

Phd in progress: Xinyi Zhang, IA and cybersecurity, 2019-, Advisor: Kavé Salamatian

Phd in progress: Ali Marandi, Efficient diffusion in NDN, 2016-2020, Advisor: Kavé Salamatian

9.3. Popularization

Various publications have appeared in journals accessible to a larger audience. In particular, our research work has been featured in a full page of Le Monde newspaper in July 2019 (https://www.lemonde.fr/international/visuel/2018/07/23/cyberespace-la-guerre-mondiale-des-donnees_5334901_3210.html).

Kavé Salamatian did several radio intervention, in particular, he was invited in the "Methode Scientifique" broadcasting program in November 2019.

<div align="center">

DEDUCTEAM Project-Team

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9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

Deducteam has organized the kick off meeting of Logipedia on 21-23 January 2019 in Cachan.

Frédéric Blanqui and Olivier Hermant organized the 11th International School on Rewriting (ISR) in Paris on 1-6 July 2019. The school offered to 37 participants from 8 countries, 69 hours of lectures in two parallel sessions, given by 15 lecturers from 6 countries.

Valentin Blot co-organized the Facets of realizability workshop on 1-3 July 2019, bringing together 22 researchers from 6 countries.

Frédéric Blanqui is Workshop Chair of the ACM/IEEE Symposium on Logic in Computer Science (LICS).

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

Gilles Dowek has been a member of the program committee of the Nasa Formal Methods Symposium (NFM'19) and Interactive Theorem Proving (ITP'19).

Frédéric Blanqui has been member of the program committee of the 16th International Colloquium on Theoretical Aspects of Computing (ICTAC'19), the 6th Workshop on Proof eXchange for Theorem Proving (PxTP'19), and of Large Mathematical Libraries (LML'19).

Valentin Blot was a member of the program committee for the french conference "Journées Francophones des Langages Applicatifs" 2020.

9.1.2.2. Reviewer

Guillaume Burel reviewed articles submitted to PxTP'19 and LOPSTR'19.

Valentin Blot reviewed articles submitted to LICS'19.

Bruno Barras reviewed an article submitted to CSL'20.

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

Guillaume Burel reviewed an article for Logical Methods in Computer Science.

Bruno Barras reviewed articles submitted to the Annals of Mathematics and Artificial Intelligence and Mathematical Structures in Computer Science

9.1.4. Invited Talks

Gilles Dowek has been invited to the meeting Big proofs in Edinburgh, where he has given a talk on Logipedia.

Gilles Dowek has participated to the meeting of the Proof society in Swansea where he has given a talk on Logipedia.

Gilles Dowek has given talk on Logipedia in Lille, Strasbourg, Beijing, Rio de Janeiro, and in the virtual "Laboratoire International de Recherche en Informatique et Mathématiques Appliquées".

Frédéric Blanqui gave talks at Gunma University (Japan) and Tohoku University (Japan).

Guillaume Genestier gave a seminar at the logic group of Chalmers University (Sweden).

Valentin Blot gave an invited talk at a realizability workshop on 18-20 September 2019 in Marseille, and a talk at the IRIF semantics working group.

9.1.5. *Leadership within the Scientific Community*

Frédéric Blanqui is member of the Steering Committees of LICS, TYPES and ISR.

9.1.6. *Scientific Expertise*

Bruno Barras reviewed a research proposal submitted to the Dutch National Research Organization (NWO).

9.1.7. *Research Administration*

Frédéric Blanqui is co-director of the pole 4 of the doctoral school STIC of the University Paris-Saclay.

Frédéric Blanqui is member of the committee of the doctoral school of the ENS Paris-Saclay.

Frédéric Blanqui is in charge of following PhD students at LSV.

9.2. Teaching - Supervision - Juries

9.2.1. *Teaching*

- Master: Frédéric Blanqui, formal languages, 21h, M1, ENSIIE, France
- Master: Frédéric Blanqui, rewriting theory, 14h, M1, ENS Paris-Saclay, France
- Master: Frédéric Blanqui, λ-calculus and theories in first-order logic, 18h, M1/M2, ENS Paris-Saclay, France
- Master: Bruno Barras, Proof Assistants, 12h, M2, MPRI, France
- Master: Gabriel Hondet, rewriting theory TD, 14h, M!, ENS Paris-Saclay, France
- Licence: Gabriel Hondet, operating systems and architecture TD, 22.5h, L3, ENS Paris-Saclay, France
- Licence: Gabriel Hondet, programming TD, 12h, L3, ENS Paris-Saclay, France
- License: Gaspard Férey, Théorie des Langages, 44h, L3, EISTI
- IUT: Yacine El Haddad, Programmation Web Côté Serveur, 62h, IUT of Orsay

9.2.2. *Supervision*

- PhD in progress: Guillaume Genestier, termination in $\lambda\Pi$-calculus modulo theory, 01/10/17, Frédéric Blanqui and Olivier Hermant.
- PhD in progress: Mohamed Yacine El Haddad, using automated provers in proof assistants, 05/01/18, Frédéric Blanqui and Guillaume Burel.
- PhD in progress: Gabriel Hondet, translating PVS proofs to Dedukti, 01/10/19, Frédéric Blanqui and Gilles Dowek.

9.2.3. *Juries*

Bruno Barras and Valentin Blot have participated to the PhD jury of Youssef El Bakouny from Université St-Joseph, Beirut (Lebanon).

9.3. Popularization

9.3.1. *Articles and contents*

Articles

- The synthesis article Algorithmes et modèles : l'histoire d'une convergence, written a decade ago has been published in Pierre Mounoud, Leçons de mathématiques d'aujourd'hui : Volume 5 (Cassini,2019).

Books

- Gilles Dowek, Ce dont on ne peut parler, il faut l'écrire : Langues et langages (Le Pommier, 2019)

Manuscripts

- Gilles Dowek, How the physical Church-Turing thesis changed the concept of machine, manuscript, 2019.

- Gilles Dowek, Two consequences of the hypothesis that we are within the world, manuscript, 2019.

- Gilles Dowek, Instinct, language, and artificial intelligence, manuscript, 2019.

9.3.2. Interventions

Gilles Dowek has been invited to the PROGRAMme workshop "Machines" where he has presented a paper How the physical Church-Turing thesis changed the concept of machine.

Gilles Dowek has been invited to the Conference on Robotics, AI, and Humanity, Science, Ethics, and Policy organized by the Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences where he has presented a paper Instinct, language, and artificial intelligence.

Gilles Dowek has been invited at the meeting Le hasard, le calcul et la vie, in Cerisy, where he has given a talk Un Chaos discret.

Gilles Dowek has been invited to the meeting Experiencing reality directly in Jerusalem where he has presented a paper Two consequences of the hypothesis that we are within the world.

GALLINETTE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Selection

8.1.1.1. Chair of Conference Program Committees

- A. Mahboubi has served as co-PC chair of the 8th ACM SIGPLAN International Conference on Certified Programs and Proofs (CPP'19).
- A. Mahboubi has served as co-chair of the CoqPL'20 workshop, satellite of POPL'20.

8.1.1.2. Member of the Conference Program Committees

- P.-M. Pédrot has been a member of the program committee of the Coq Workshop'19 and JFLA'20.
- N. Tabareau has been a member of the program committee of FSCD'19 and POPL'19.
- G. Munch-Maccagnoni has been a member of the external review committee for ICFP'19 conference, and a member of the program committees for the workshops SD'19 (affiliated with FSCD) and LOLA'19 (affilitated with LICS).
- A. Mahboubi has been a member of the program commitee of the ITP'19, Frocos'19 and CPP'20 international conferences, and of the TFP'19 workshop.
- G. Jaber has been a member of the program committee of the Student Research Competition of POPL'20.

8.1.1.3. Reviewer

- P.-M. Pédrot has served as an external reviewer for CPP'19, FoSSaCS'19, ICFP'19 and LICS'19.
- N. Tabareau has served as an external reviewer for LICS'19, CPP'19.
- G. Munch-Maccagnoni has served as an external reviewer for FoSSaCS'20.
- G. Jaber has served as an external reviewer for CONCUR'19, ITP'19, FoSSaCS'19 and POPL'20.

8.1.2. Journal

8.1.2.1. Member of the Editorial Boards

- A. Mahboubi is a member of the editorial board of the Journal of Automated Reasoning.
- A. Mahboubi is co-editing the post-proceedings of the TYPES 2019 conference.

8.1.2.2. Reviewer - Reviewing Activities

- N. Tabareau has been a reviewer for Mathematical Strucutre in Computer Science.

8.1.3. Invited Talks

- P.-M. Pédrot gave a 3 hour long invited class on effectful types theories at the JFLA 2019.
- N. Tabareau has given an invited talk at Coq Workshop 2019 in Portland, Oregon.
- G. Munch-Maccagnoni gave a talk at ITU Copenhaguen in July and a talk at the seminar of philosophy in computer science Codes Sources in Paris in June.
- A. Mahboubi has given an invited talk repectively at the MPC'19, CiE'19, Cade'19 and Types'19 international conferences, at the PxTP'19 international workshop and at the Codes Sources seminar.

8.1.4. Leadership within the Scientific Community

- N. Tabareau is a member of the scientific committee of the GdR of Algebraic Topology.

- A. Mahboubi is a member of the core managment group of the EUTypes project, and leader of the "Tools" working group.
- A. Mahboubi is a member of the steering committee of the ITP conference.
- A. Mahboubi is a member of the scientific committee of the GdR "Informatique Mathématique".

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Licence : Julien Cohen, Discrete Mathematics, 48h, L1 (IUT), IUT Nantes, France

Licence : Julien Cohen, Introduction to proof assistants (Coq), 8h, L2 (PEIP : IUT/Engineering school), Polytech Nantes, France

Licence : Julien Cohen, Functional Programming (Scala), 22h, L2 (IUT), IUT Nantes, France

Master : Julien Cohen, Object oriented programming (Java), 32h, M1 (Engineering school), Polytech Nantes, France

Master : Julien Cohen, Functional programming (OCaml), 18h, M1 (Engineering school), Polytech Nantes, France

Master : Julien Cohen, Tools for softaware engineering (proof with Frama-C, test, code management), 20h, M1 (Engineering school), Polytech Nantes, France

Licence : Rémi Douence, Object Oriented Design and Programming, 45h, L1 (engineers), IMT-Atlantique, Nantes, France

Licence : Rémi Douence, Introduction to scientific research in computer science (Project: an Haskell interpreter in Java) Project, 20h, L1 (engineers), IMT-Atlantique, Nantes, France

Licence : Rémi Douence, Object Oriented Design and Programming Project, 30h, L1 (apprenticeship), IMT-Atlantique, Nantes, France

Master : Rémi Douence, Functional Programming with Haskell, 20h, M1 (apprenticeship), IMT-Atlantique, Nantes, France

Master : Rémi Douence, Introduction to scientific research in computer science (Project: an Haskell interpreter in Java), 45h, M2 (apprenticeship), IMT-Atlantique, Nantes, France

Licence : Hervé Grall, Algorithms and Discrete Mathematics, 25h , L3 (engineers), IMT-Atlantique, Nantes, France

Licence : Hervé Grall, Object Oriented Design and Programming, 25h , L3 (engineers), IMT-Atlantique, Nantes, France

Licence, Master : Hervé Grall, Modularity and Typing, 40h, L3 and M1, IMT-Atlantique, Nantes, France

Master : Hervé Grall, Service-oriented Computing, 40h, M1 and M2, IMT-Atlantique, Nantes, France

Master : Hervé Grall, Research Project - (Linear) Logic Programming in Coq, 90h (1/3 supervised), M1 and M2, IMT-Atlantique, Nantes, France

Licence : Guilhem Jaber, Computer Tools for Science, 36h, L1, Université de Nantes France

Master : Guilhem Jaber, Verification and Formal Proofs, 18h, M1, Université de Nantes, France

Master : Nicolas Tabareau, Homotopy Type Theory, 24h, M2 LMFI, Université Paris Diderot, France

8.2.2. Supervision

PhD : Gaetan Gilbert, A new foundation for the Coq proof assistant based on the insight of Homotopy Type Theory, IMT Atlantique, advisors: Matthieu Sozeau and Nicolas Tabareau

PhD : Ambroise Lafont,Towards an unbiased approach to specify, implement, and prove properties on programming languages, IMT Atlantique, advisors: Tom Hirschowitz and Nicolas Tabareau

PhD in progress: Xavier Montillet, Rewriting theory for effects and dependent types, Univ Nantes, advisors: Guillaume Munch-Maccagnoni and Nicolas Tabareau

PhD in progress: Théo Winterhalter, Extending the flexibility of the universe hierarchy in type theory, Univ Nantes, advisors: Matthieu Sozeau and Nicolas Tabareau

PhD in progress: Joachim Hotonnier, Deep Specification for Domain-Specific Modelling, advisors: Gerson Sunye (Naomod team), Massimo Tisi (Naomod team), Hervé Grall

PhD in progress: Igor Zhirkov, Certified Refactoring of C in the Coq proof assistant, advisors: Rémi Douence and Julien Cohen.

8.2.2.1. Supervision of interns

E. Bauer has visited the team for an L3 research internship from June to July on the subject "Categorical models of differential linear logic", supervised by Marie Kerjean.

A. Ben Mansour has visited the team for an L3 research internship from June to August on the subject "Parametricity for languages with effects", supervised by G. Munch-Maccagnoni.

M. Bertrand has visited the team from February to July for an internship on the subject "Effects in Type Theory", supervised by N. Tabareau.

L. Pujet has visited the team from April to August for an internship on the subject "Interpreting Cubical Type Theory using forcing", supervised by N. Tabareau.

G. Combette is visiting the team from October 2019 to February 2020 for an internship on the subject "Axiomatic denotational semantics for resource management in systems programming", supervised by G. Munch-Maccagnoni.

L. Escot has visited the team from October to December for an internship on the subject "Univalent Parametricity at Scale", supervised by N. Tabareau.

P. Geneau de Lamarlière has visited the team for an L3 research internship from June to July on the subject "Symbolic computations in algebraic number theory", co-supervised by A. Mahboubi and S. Dahmen (VU Amsterdam).

8.2.3. Juries

- N. Tabareau has served as external member on the PhD jury of Kenji Maillard, defended November 25th at Inria Paris - Université Paris Sciences et Lettres.
- A. Mahboubi has served as external member on the PhD jury of Florian Faissole, defended December 13th at Paris Saclay University.
- A. Mahboubi has served as external member on the PhD jury of Gaëtan Gilbert, defended December 20th at IMT Atlantique.
- A. Mahboubi has served on the 2019 jury for recruiting Inria CRCN at Inria Rennes Bretagne Atlantique.
- A. Mahboubi has served on the 2019 jury for recruiting an "Agrégé Préparateur" at ENS Rennes.

8.3. Popularization

8.3.1. Education

- Hervé Grall has contributed to the project Merite, which aims to promote science learning in middle and high schools. He is the main contributor to the theme "Communication between machines". The project is coordinated by IMT-Atlantique in partnership with 7 other french higher education institutions, the rectorates of the Nantes and Rennes academies, and financed by the "Investments in the Future" and the fund FEDER Pays-de-la-Loire.

- A. Mahboubi has worked with composer Alessandro Bossetti and students of the professional high-school Lycée Michelet, on a project "Art and Mathematics", supported by the Athenor theater.

8.3.2. Interventions

- P.-M. Pédrot was invited to give a talk about his scientific activities in Le Pleynet, during the "Semaine Sport-Études" of the first year students in computer science from the ENS Lyon.
- P.-M. Pédrot gave a similar talk about his scientific activities at the LS2N, during the visit of first year students in computer science from the ENS Cachan.

8.3.3. Internal action

- A. Mahboubi participates to the Irisa/Inria mentoring program.

GAMBLE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organization

10.1.1.1. Member of the Organizing Committees

Sylvain Lazard organized with S. Whitesides (Victoria University) the 18th Workshop on Computational Geometry at the Bellairs Research Institute of McGill University in Feb. (1 week workshop on invitation).

Olivier Devillers organized the Trip-Aspag Mini-workshop on routing in triangulations, October 21-25 in Nancy.

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

Guillaume Moroz was in the program committee of the Maple Conference 2019

Xavier Goaoc was on the organizing committee of the Rouen probability meeting

Xavier Goaoc was on the program committee of the Iranian conference on Computational geometry

Xavier Goaoc was on the scientific committee of the Séminaire Francilien de Géométrie Algorithmique et Combinatoire

10.1.2.2. Reviewer

All members of the team are regular reviewers for the conferences of our field, namely the *Symposium on Computational Geometry* (SoCG) and the *International Symposium on Symbolic and Algebraic Computation* (ISSAC) and also SODA, CCCG, EuroCG.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Monique Teillaud is a managing editor of JoCG, *Journal of Computational Geometry* and a member of the editorial board of IJCGA, *International Journal of Computational Geometry and Applications*.

Marc Pouget and Monique Teillaud are members of the CGAL editorial board.

10.1.3.2. Reviewer - Reviewing Activities

All members of the team are regular reviewers for the journals of our field, namely *Discrete and Computational Geometry* (DCG), *Journal of Computational Geometry* (JoCG), *International Journal on Computational Geometry and Applications* (IJCGA), *Journal on Symbolic Computations* (JSC), *SIAM Journal on Computing* (SICOMP), *Mathematics in Computer Science* (MCS), etc.

10.1.4. Invited Talks

Olivier Devillers and Monique Teillaud gave talks at the workshop New Horizons in Computational Geometry and Topology

Monique Teillaud gave a talk at the Celebration for the CNRS Silver medal of Claire Mathieu

10.1.5. Leadership within the Scientific Community

10.1.5.1. Steering Committees

Monique Teillaud is chairing the Steering Committee of the Symposium on Computational Geometry (SoCG).

10.1.6. Research Administration

10.1.6.1. Hiring committees

Sylvain Lazard was vice chair of the hiring committee for researchers (CRCN) of Inria Nancy - Grand Est.

Monique Teillaud was a member of the hiring committee for a Professor position at Université Paris Est Marne-la-Vallée.

10.1.6.2. National committees

M. Teillaud is a member of the working group for the BIL, *Base d'Information des Logiciels* of Inria.

10.1.6.3. Local Committees and Responsabilities

O. Devillers: Elected member to *Pole AM2I* the council that gathers labs in mathematics, computer science, and control theory at *Université de Lorraine*.

L. Dupont is responsible of Fablab of IUT Charlemagne, Univerasité de Lorraine (since 2018, November). Member of *Comité Information Edition Scientifique* of LORIA.

X. Goaoc is a member of the council of the *Fédération Charles Hermite* since sep. 2018.

S. Lazard: Head of the PhD and Post-doc hiring committee for Inria Nancy-Grand Est (since 2009). Member of the *Bureau de la mention informatique* of the *École Doctorale IAEM* (since 2009). Head of the *Mission Jeunes Chercheurs* for Inria national (since 2018). Head of the Department Algo at LORIA (since 2014). Member of the *Conseil Scientifique* of LORIA (since 2014).

G. Moroz is head of the *Comité des utilisateurs des moyens informatiques* (since nov. 2019). He is member of the CDT, *Commission de développement technologique*, of Inria Nancy - Grand Est (since 2018). He is member of the CLHSCT *Comité local d'hygiène, de sécurité et des conditions de travail* of Inria Nancy - Grand Est (since jan. 2019).

M. Pouget is an elected member of the *Comité de centre*, and is secretary of the board of *AGOS-Nancy*.

M. Teillaud is "Chargée de Mission" as Scientific Advisor for Technologic Development for Inria Nancy-Grand Est. She is a member of the *Conseil de Laboratoire* of LORIA.

10.1.6.4. Websites

M. Teillaud is maintaining the Computational Geometry Web Pages http://www.computational-geometry.org/, hosted by Inria Nancy - Grand Est. This site offers general interest information for the computational geometry community, in particular the Web proceedings of the Video Review of Computational Geometry, part of the Annual/international Symposium on Computational Geometry.

10.2. Teaching - Supervision - Juries

10.2.1. Committees

L. Dupont is the secretary of *Commission Pédagogique Nationale Carrières Sociales / Information-Communication / Métiers du Multimédia et de l'Internet* (2017-2022).

L. Dupont: Head of the Bachelor diploma *Licence Professionnelle Animation des Communautés et Réseaux Socionumériques*, Université de Lorraine.

10.2.2. Teaching

Master: Olivier Devillers, *Modèles d'environnements, planification de trajectoires*, 18h, M2 AVR, Université de Lorraine. https://members.loria.fr/Olivier.Devillers/master/

Master: Vincent Despré, *Algorithmique*, 48h, M1, Polytech Nancy, France.

Master: Vincent Despré, *Programmation réseau*, 60h, M1, Polytech Nancy, France.

Master: Vincent Despré, *Architecture avancée*, 20h, M1, Polytech Nancy, France.

Master: Vincent Despré, *Architecture Java EE*, 72h, M1, Polytech Nancy, France.

Licence: Charles Duménil, *Algorithmique et programmation avancée*, 10h, M2, FST, Université de Lorraine, France.

Licence: Charles Duménil, *Découverte de l'informatique*, 88h, L1, Polytech Nancy, Université de Lorraine, France.

Licence: Charles Duménil, *Logiciels scientifiques*, 8h, L3, Polytech Nancy, Université de Lorraine, France.

Licence: Laurent Dupont, *Web development*, 35h, L2, Université de Lorraine, France.

Licence: Laurent Dupont, *Web development*, 150h, L2, Université de Lorraine, France.

Licence: Laurent Dupont *Web development and Social networks* 100h L3, Université de Lorraine, France.

Licence: Xavier Goaoc, *Programmation*, 20 HETD, L3, École des Mines de Nancy, France.

Master: Xavier Goaoc, *Algorithms*, 32 HETD, M1, École des Mines de Nancy, France.

Master: Xavier Goaoc, *Computer architecture*, 32+24 HETD, M1, École des Mines de Nancy + Polytech Nancy, France.

Licence: Galatée Hemery, *Programmation*, 52 HETD, L3, École des Mines de Nancy, France.

Licence: Sylvain Lazard, *Algorithms and Complexity*, 20h, L3, Université de Lorraine, France.

Master: Marc Pouget, *Introduction to computational geometry*, 10.5h, M2, École Nationale Supérieure de Géologie, France.

10.2.3. Supervision

PhD: Iordan Iordanov, Delaunay triangulations of a family of symmetric hyperbolic surfaces in practice, defended March 12th, supervised by Monique Teillaud [11].

PhD in progress: Sény Diatta, Complexité du calcul de la topologie d'une courbe dans l'espace et d'une surface, started in Nov. 2014, supervised by Daouda Niang Diatta, Marie-Françoise Roy and Guillaume Moroz.

PhD in progress: Charles Duménil, Probabilistic analysis of geometric structures, started in Oct. 2016, supervised by Olivier Devillers.

PhD in progress: George Krait, Topology of singular curves and surfaces, applications to visualization and robotics, started in Nov. 2017, supervised by Sylvain Lazard, Guillaume Moroz and Marc Pouget.

PhD in progress: Galatée Hemery, Algorithmic and geometric aspects of inclusion-exclusion, started in Sep. 2018 , supervised by Xavier Goaoc and Éric Colin de Verdière (UPEM).

PhD in progress: Nuwan Herath, Fast algorithm for the visualization of surfaces, started in Nov. 2019, supervised by Sylvain Lazard, Guillaume Moroz and Marc Pouget.

10.2.4. Juries

M. Teillaud was a member of the PhD committee of Iordan Iordanov (Université de Lorraine)

X. Goaoc was on the reading and defense committees of the habilitation defense of Arnau Padrol (IMJ, Université Paris Sorbonne)

10.3. Popularization

10.3.1. Education

G. Moroz is member of the Mathematics Olympiades committee of the Nancy-Metz academy.

10.3.2. Interventions

L. Dupont participated in several events of popularization of computer science:

Day ♯4 FAN Project, April 23th, Inria project, adult audience.

ISN day, March 7th, adult continuing education of computer science for high-school teachers.

Atelier Google, April 13th, popularization of computer science, general audience.

Atelier Google, December 7th, popularization of computer science, general audience.

<p style="text-align:center">**GRACE Project-Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Member of the Conference Program Committees

- Tokenomics 2019, International Conference on Blockchain Economics, Security and Protocols, Paris: D. Augot.
- FAB 2019, Second International Symposium on Foundations and Applications of Blockchain, Los Angeles: D. Augot
- ICBC 2019 (IEEE International Conference on Blockchain and Cryptocurrency, Seoul): D. Augot
- CBT 2019 (3rd International Workshop on Cryptocurrencies and Blockchain Technology, Barcelona)
- ECC 2019 (23rd International Workshop on Elliptic Curve Cryptography, Bochum): B. Smith
- Latincrypt 2019 (Santiago de Chile): B. Smith
- C2SI (*Codes, Cryptographie et Sécurité Informatique*) 2019 (Rabat, Morocco) A. Couvreur

9.1.1.2. Reviewer

- Eurocrypt 2019: D. Augot, B. Smith
- Indocrypt 2019 (20th International Conference on Cryptology in India, Hyderabad):D. Augot
- ISIT (International Symposium on Information Theory) 2019: D. Augot, A. Couvreur.
- Latincrypt 2019. A. Couvreur.
- SAC 2019: B. Smith
- STACS 2020: B. Smith

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- F. Morain is member of the editorial board of the *Applicable Algebra in Engineering, Communication and Computing*, Springer.
- A. Couvreur is member of the editorial board of the *Publications mathématiques de l'Institut de mathématiques de Besançon, Algèbre et Théorie des nombres*.

9.1.2.2. Reviewer - Reviewing Activities

- Applicable Algebra in Engineering, Communication, and Computing: B. Smith
- Journal of Cryptographic Engineering: B. Smith
- Journal of Cryptology: B. Smith
- Publications Mathématiques de Besançon: B. Smith
- Transactions on Mathematical Software: B. Smith
- Designs, Codes and Cryptography: A. Couvreur.
- IEEE, Transactions on Information Theory: A. Couvreur.
- IEEE, Transactions on Communication: A. Couvreur.

9.1.3. Invited Talks

- D. Augot was invited to the joint Caen-Rouen ArcoCrypt colloquium.

- F. Morain was invited to give a talk at the seminar of the ARIC project-team in Lyon.
- G. Renault was invited to give the main keynote at PHISIC'19 workshop (Gardanne)
- G. Renault was invited to give a talk at the Workshop on Randomness and Arithmetics for Cryptography on Hardware (Roscoff)
- G. Renault was invited to give a talk at the Journée Internationale Post-Quantique organized by Institut Cyber de Grenoble Alpes.
- B. Smith was invited to give a talk at the Workshop on Arithmetic of low-dimensional abelian varieties at ICERM (Providence, USA)
- B. Smith and A. Couvreur were invited to give a talk in the mini-symposium on isogeny-based cryptography at the SIAM Conference on Applied Algebraic Geometry (Bern, Switzerland)
- B. Smith was invited to give a talk in the Autumn session of *Arithmétique en Plat Pays* (Mons, Belgium)
- A. Couvreur was invited speaker at the conference *WCC (Workshop on Coding and Cryptography) 2019* Saint Jacut de la mer, France.
- A. Couvreur was invited speaker at the conference *NuTMIC (Number Theoretic Methods In Cryptography) 2019*, Paris.

9.1.4. Seminars

D. Augot is member of the scientific committee of the C2 seminar, which is the French wide, now itinerant, seminar of the subgroup "Codage et Cryptographie" of the CNRS GDR group "Informatique mathématique".

9.1.5. Scientific Expertise

G. Renault was member of the Comité d'Évaluation du LJK (Grenoble) pour l'Hcéres.

9.1.6. Research Administration

- F. Morain is vice-head of the Département d'informatique of Ecole Polytechnique; in charge of years 1 and 2 for Computer Science courses.
- F. Morain is member of the Board of Master Parisien de Recherche en Informatique (MPRI); also a member of the board of the Cybersecurity track in the CS Master of IPParis.
- Recruitment committees:
  - D. Augot participated in a selection committee for an Assistant Professor position at École polytechnique.
  - A. Couvreur is member of the *commission scientifique* of Inria Saclay's research centre.
- Funding
  - D. Augot belongs to the Inria-NomadicLabs committee.
  - D. Augot belongs to MATH-INFO subcommittee of Saclay labex Laboratoire Jacques Hadamard, and has been replaced by A. Couvreur.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : F. Morain, Lectures for INF361: "Introduction à l'informatique", 15h (equiv TD), 1st year (L3), École polytechnique. Coordinator of this module (350 students).

Licence : B. Smith: *CSE101: Introduction to Computer Programming*, 42h, L1, École polytechnique, France

Licence : G. Renault: INF361, *Introduction à l'informatique*, 50h, L3, École Polytechnique, France.

Master : A. Couvreur : *MPRI 2-13-2: Error Correcting codes and applications to cryptography*.

Master : D. Augot: lectures and labs on crypto in blockchains, 24h, M2, École polytechnique, France.

Master : F. Morain is the scientific leader of the Master of Science and Technology *Cybersecurity: Threats and Defense* of École Polytechnique.

Master : F. Morain and A. Couvreur, INF558, *Introduction to cryptology*, 36h, M1, École Polytechnique.

Master : B. Smith: *INF568: Advanced Cryptography*, 54h, M1, École polytechnique, France

Master : B. Smith and F. Morain: *MPRI 2-12-2: Algorithmes Arithmétiques pour la Cryptologie*, 22.5h, M2, Master Parisien de Recherche en Informatique, France

Master : F. Levy-dit-Vehel, discrete maths, 21h, M1, ENSTA.

Master : F. Levy-dit-Vehel, cryptography, 24h, M2, ENSTA.

9.2.2. Supervision

HdR : A. Couvreur, Codes algébriques et géométriques, applications à la cryptographie et à l'information quantique, Paris Diderot University, December 16, 2019.

9.2.3. Juries

- D. Augot was member of the thesis committee of Thomas Debris.
- G. Renault was president of the thesis committee of François Boutigny.
- G. Renault was member of the thesis committee of Ramtine Tofighi.
- B. Smith was a member of the thesis committee of Louiza Papachristodoulou (Radboud Universiteit Nijmegen)
- B. Smith was a member of the thesis committee of Joost Renes (Radboud Universiteit Nijmegen)
- B. Smith was a *rapporteur* on the thesis of Yan Bo Ti (University of Auckland).

9.3. Popularization

9.3.1. Interventions...

- D. Augot was invited to the mathematical colloquium of the University of Besançon.
- Colloque "Blockchains et compétences" à l'Assemblée nationale le 14 mars: D. Augot, who participated to three meetings at Ministry of Finance and Ministry of Industry about blockchains.
- A. Couvreur is *Correspondant de Médiation Scientifique* of Inria Saclay's research centre.
- A. Couvreur organised the *Fête de la science 2019* at Inria Saclay on october 10 and 11 2019. J. Nardi, S. Bordage, M. Chenu de la Morinerie, M. Romeas participated to the event as volunteers.
- A. Couvreur organised the Rendez-vous des Jeunes Mathématiciennes et Informaticiennes (RJMI) at Inria Saclay on october 21 and 22, 2019.

<p style="text-align:center">**HYCOMES Project-Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Member of the Conference Program Committees

- Albert Benveniste has served on the Program Committee of the Modelica Conference 2019.
- Khalil Ghorbal has served on the Program Committee of the VMCAI 2019 conference.
- Benoît Caillaud has served on the Steering Committee of the ACSD 2019 conference.

9.1.2. Invited Talks

Albert Benveniste has given an invited talk titled "Why considering nonstandard semantics for hybrid systems and how to reconcile it with superdense time semantics" at the Oded Maler Memorial workshop at the HSCC'19 conference in Montreal, Canada.

9.1.3. Leadership within the Scientific Community

Albert Benveniste is member of the French Académie des Technologies.

9.1.4. Scientific Expertise

- In 2019, Benoît Caillaud has reviewed collaborative research project proposals submitted to the French national funding agency ANR. As an Inria Evaluation Committee member, he has served on several Inria hiring and promotion committees.
- Albert Benveniste is president of the Scientific Council of Orange and member of the Scientific Council of Safran.

9.1.5. Research Administration

- Albert Benveniste is member of the Burex (Executive Bureau) of the Cominlabs Labex [0].
- Benoît Caillaud is in charge of the IPL ModeliScale [0] national initiative funded by Inria. He is also head of the Programming Languages & Software Engineering department [0] of IRISA.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master : Khalil Ghorbal, *Analyse et Conception Formelles*, M1, (chargé de TD), 22h EqTD, University Rennes 1 and ENS Rennes, France

Master : Khalil Ghorbal, Solvers Principle and Architectures, M2, (enseignant principal), 30h EqTD, ENS Rennes, France

Master : Khalil Ghorbal, Modeling Physics with Differential-Algebraic Equations, M2, (enseignant principal), 25h EqTD, Ecole Polytechnique, Palaiseau, France

9.2.2. Supervision

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[0]https://cominlabs.u-bretagneloire.fr/governance
[0]https://team.inria.fr/modeliscale/
[0]http://www.irisa.fr/en/departments/d4-language-and-software-engineering

PhD: Christelle Kozaily, Structural analysis of nonsmooth dynamical systems, university of Rennes 1, co-supervised by Vincent Acary (Tripop [0] team at Inria Grenoble), Benoît Caillaud and Kahlil Ghorbal, started October 2018.

PhD: Aurélien Lamercerie, Formal analysis of cyber-physical systems requirements expressed in natural language, university of Rennes 1, co-supervised by par Benoît Caillaud et Annie Forêt (SemLIS [0] team of IRISA), started December 2017.

PhD: Joan Thibault, Structural Analysis Techniques for Binary Decision Diagrams, university of Rennes 1, co-supervised by Benoît Caillaud and Khalil Ghorbal.

9.2.3. *Juries*

Benoît Caillaud has served as president of the jury for Hugo Bazille's PhD defense, at the University of Rennes 1.

9.3. Popularization

9.3.1. *Internal action*

The Hycomes team has hosted short internships for secondary school students. This has been an opportunity to promote women in computing, since three female students visited the team for four days, to discover what scientific research is, and what research in computer science could mean. All team members contributed to the initiative.

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[0] https://team.inria.fr/tripop/
[0] https://www-semlis.irisa.fr

Kairos Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- F. Mallet was Track Scientific Chair for DATE2019 organized in Firenze in March 2019.
- E. Madelaine is Chair of the Steering Committee of the Formal Aspects of Component Systems (FACS) conference.
- J.Deantoni was Chair of the first international workshops on "Multi-Paradigm Modeling for Cyber-Physical Systems" and "Modeling Language Engineering and Execution".
- J.Deantoni was Chair of "Computational Science" track of the RIVF 2019 conference.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- F. Mallet was Program Co-Chair of the 10th Workshop on Formal Techniques for Safety Critical Systems (FTSCS), organized as a satellite event of ICFEM 2019, in Shenzhen, Chine, in November 2019.
- F. Mallet was Program Co-Chair of ICTERI 2019 organized in Kherson, Ukraine, in May 2019.

10.1.2.2. Member of the Conference Program Committees

- J.Deantoni was in the program committee of: CoSim-CPS'19 and DSD'19
- F. Mallet was in the program committees of SEFM'19, DATE'19, FDL'19, DSD'19, Model-sward'19.
- D. Potop-Butucaru was in the program committee of FDL'19 and ACSD'19

10.1.2.3. Reviewer

- E. Madelaine is reviewer for the Formal Aspects of Component Systems (FACS), and industrial Formal Methods (iFM) conferences.
- L. Liquori and Claude Stolze reviewed for the conference FOSSACS/ETAPS.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- F. Mallet is now in the editorial board of Springer journal Software-Intensive Cyber-Physical Systems (SICS) dedicated to all topics around software in embedded and cyber-physical systems.
- F. Mallet was guest editor for a special issue of Elsevier Science of Computer Programming dedicated to the Theoretical Aspects of Software Engineering.

10.1.3.2. Reviewer - Reviewing Activities

- E. Madelaine was reviewer for the Journal of Systems and Software (JSS), and for Science of Computer Programming (SCP).
- L. Liquori and Claude Stolze reviewed for Fundamenta Informaticae.
- F. Mallet was reviewer for IEEE Transactions on Software Engineering (TSE) and Elsevier Journal on Microprocessors and Microsystems (MICPRO).

10.1.4. Invited Talks

- J.Deantoni was invited for a talk in the Danang University during the RIVF conference.
- J.Deantoni was invited for a talk during the "Computer Automated Multi-Paradigm Modelling 2019" meeting in Bellairs.
- F. Mallet was invited as a keynote speaker to the 11th IEEE TASE 2019 organized in Guilin, Chine (July 2019).
- L. Liquori is invited for a talk at the Bamberg University, Jan 2020.

10.1.5. Scientific Expertise

- F. Mallet is an elected member of the Conseil National des Universités (CNU) for section 27.
- F. Mallet has made an expertise of projects for the Belgium Agency of Research (FNRS).

10.1.6. Research Administration

- F. Mallet is Deputy Director of UMR I3S Laboratory and as such, member of its "comité de direction" and "conseil de laboratoire", together with the steering committee of the graduate school (EUR) DS4H.
- Sid Touati is member of the direction committee of I3S laboratory.
- M.A Peraldi-Frati is member of the I3S Laboratory council. She has been recently appointed member of UCA Academic Council.
- Luigi Liquori is member of the IFIP working group WG1.6 on Rewriting.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : Sid TOUATI, Fondement machine, 75 heures eq TD, L1 informatique, Université Côte d'Azur.

Licence : Sid TOUATI, Architecture machine, 45 heures eq TD, L3 informatique, Université Côte d'Azur.

Licence : Sid TOUATI, Compilation, 33 heures eq TD, L3 informatique, Université Côte d'Azur.

Master: Sid TOUATI, Architectures et logiciels hautes performances, 81 heures eq TD, Master 1 informatique, Université Côte d'Azur.

Master international: Sid TOUATI, Advanced operating systems, 30 heures eq TD, Master 1 informatique, Université Côte d'Azur.

International Master: Frédéric Mallet, Safety-Critical Systems, 32h.

Master: Frédéric Mallet, Software Engineering, 32h.

Master : Robert de Simone, Formal Methods for NoC-based design, 36 heures eq TD, M2 International Ubinet, Université Côte d'Azur.

License: Marie-Agnès Peraldi-Frati teaches Web security (20h eq TD), Security of connected objects (20h eq TD), IoT Infrastructure deployment (20 H) and Large scale plateform for IoT (20h eq TD) in a licence cursus dedicated to Internet of Objects, Infrastructure and Applications.

Master:Marie-Agnès Paraldi Frati, Web Security and IoT Platform, 20h eq TD, Master 2 SICOM, Univ Avignon.

Master : Luigi Liquori, Peer-to-peer systems, 32 eq TD, Université Côte d'Azur.

Master: Luigi Liquori, Rewriting Systems and Pattern Matching, 12 eq TD, Université de Lorraine.

Ph.D.: Winter School on Theoretical Foundations of Computer Science, 4-9 February 2019, Georgia. Luigi Liquori. Peer-to-peer and related systems, International Black Sea University and Shota Rustaveli National Science Foundation of Georgia.

Ph.D.: 12th International School on Rewriting (ISR) July 2020, Spain. Luigi Liquori. Pattern matching λ-calculi.

Master: Julien Deantoni, Finite State Machine, 54h eq TD, Polytech'Nice.

Master: Julien Deantoni, Multi Paradigm Programming in C++, 54h eq TD, Polytech'Nice.

Master: Julien Deantoni, Domain Specific Languages, 32h eq TD, Polytech'Nice.

Master: Julien Deantoni, Language Interpreter, 32h eq TD, Polytech'Nice.

Master: Julien Deantoni, Micro-controller programming, 8h eq TD, Polytech'Nice.

Master: Dumitru Potop-Butucaru, A synchronous approach to the design of embedded real-time systems, 30h, EPITA Engineering School, Paris.

Master: Dumitru Potop-Butucaru, Real-time embedded systems, 42h, EIDD (École d'Ingenieur Denis Diderot), Paris

10.2.2. Supervision

- HDR : Julien Deantoni, *Towards Formal System Modeling: Making Explicit and Formal the Concurrent and Timed Operational Semantics to Better Understand Heterogeneous Models*, Université Côte d'Azur, Juillet 2019 [13]

- PhD : Claude Stolze, Combining union, intersection and dependent types in an explicitly typed lambda-calculus, Université Côte d'Azur, Dec 16th 2019, Luigi Liquori. [14]

- PhD in progress : Carsten BRUNS, Performance analysis and optimisation of C++ applications, Université Côte d'Azur, 2021, Sid TOUATI.

- PhD in progress : Giovanni Liboni, Coordination of discrete (Cyber) Models, Université Cote d'Azur, end 2021, Frédéric Mallet, Julien DeAntoni.

- PhD in progress : Joelle Abou Faysal, A Formal Language for Ensuring Safety Scenarios in Autonomous Vehicles, Université Cote d'Azur, 2022, Frédéric Mallet.

- PhD: Keryan Didier, Contributions to the safe and efficient parallelisation of hard real-time systems. Sorbonne University, September 19, 2019, Dumitru Potop-Butucaru.

- PhD in progress : Hugo Pompougnac, Sorbonne University, 2022, Dumitru Potop-Butucaru.

10.2.3. Juries

- Frederic Mallet was president of the PhD Jury of Ines Array, Université Cote d'Azur, March 2019.

- Eric Madelaine was member of the PhD jury of Frédéric Lemoine (CNAM, Paris), July 2019.

- Frederic Mallet was reviewer for the PhD Jury of Frédéric Giroudot (ISAE, Toulouse), December 13th 2019.

- Frederic Mallet was reviewer for the PhD Jury of Ngo Minh Thang NGUYEN (Centrale Supélec/CEA), December 16th 2019.

- Dumitru Potop-Butucaru was a member of the PhD jury of Lina Marsso (Univ. Grenoble-Alpes, Inria, CNRS, GrenobleINP), December 10, 2019.

- Dumitru Potop-Butucaru was a member of the PhD jury of Pierre Donat-Bouilloud (Sorbonne University), December 6, 2019.

- Luigi Liquori was member of the PhD jury of Claude Stolze, Université Côte d'Azur, December 2019.

10.3. Popularization

10.3.1. Interventions

Luigi Liquori. Table ronde: "Journée Internationale du m-Tourisme 2019. Blockchain for Tourism", M-Tourism Day, Telecom Valley, Panel, Cannes, 2019.

KOPERNIC Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Local Chair

The Kopernic team has hosted the 10th edition of the RTSOPS in July 2019.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

Liliana Cucu-Grosjean is the track chair of IEEE RTSS2019 and DATE2020 Track co-chair for real-time systems

9.1.2.2. Member of the Conference Program Committees

- Liliana Cucu: ACM RACS, RTNS, WFCS

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

All members of the team are regularly serving as reviewers for the main journals of our domain: Information Processing Letter, Journal of Heuristics, Journal of Real-Time Systems, Journal of Systems Architecture, Journal of Signal Processing Systems, Leibniz Transactions on Embedded Systems, IEEE Transactions on Industrial Informatics, etc.

9.1.4. Scientific Expertise

- Yves Sorel: Steering Committee of System Design and Development Tools Group of Systematic Paris-Region Cluster.
- Yves Sorel: Steering Committee of Technologies and Tools Program of SystemX Institute for Technological Research (IRT).

9.1.5. Research Administration

- Liliana Cucu-Grosjean is co-chair of Inria Committee on gender equality and equal opportunities
- Yves Sorel is chair of the CUMI Paris center commission
- Liliana Cucu-Grosjean was member of Inria Evaluation Commission until September 2019
- Liliana Cucu-Grosjean is member of Inria Scientific Board and CAP CRCN since September 2019
- Liliana Cucu-Grosjean is member of Paris CLHSCT
- Liliana Cucu-Grosjean is member of CES Paris commission
- Yves Sorel is member of the CDT Paris center commission

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: Yves Sorel, Optimization of distributed real-time embedded systems, 38H, M2, University of Paris Sud, France

Master: Yves Sorel, Safe design of reactive systems, 18H, M2, ESIEE Engineering School, Noisy-Le-Grand, France

Engineering school: Liliana Cucu-Grosjean, Graph theory, 30H, ESIEE, Cergy, France

Master: Liliana Cucu-Grosjean, Software Engineering, 30H, ESIEE, Noisy-le-Grand, France

Master: Adriana Gogonel, Machine learning, 30H, ESIEE, Noisy-le-Grand, France

9.2.2. Supervision

PhD in progress: Kevin Zagalo, Statistical predictability of cyber-physical systems, UMPC, started on October 2019, supervised by Liliana Cucu and Prof. Avner Bar-Hen (CNAM)

PhD in progress: Evariste Ntaryamira, Analysis of embedded systems with time and security constraints, UPMC, started on May 2017, supervised by Liliana Cucu and Cristian Maxim (IRT SystemX)

PhD in progress: Slim Ben-Amor, Schedulability analysis of probabilistic real-time tasks under end to end constraints, UPMC, started on November 2016, supervised by Liliana Cucu.

PhD in progress: Walid Talaboulma, Probabilistic timing analysis in presence of dependences, UPMC, started November 2015, co-supervised by Liliana Cucu and Adriana Gogonel (Statinf)

9.2.3. Juries

- Yves Sorel was a HDR jury member for the thesis of Luca Santinelli (ONERA), defended in May 2019.
- Liliana Cucu-Grosjean was a Phd reviewer for the thesis of Roberto Medina (Telecom Paristech), defended in January 2019.
- Liliana Cucu-grosjean was a PhD jury member of Francesco Pozo (Malardelan, Sweden), defended in October 2019.

9.3. Popularization

9.3.1. Articles and contents

- Interview with the Statinf co-founders, published on Inria web site (https://www.inria.fr/centre/paris/actualites/statinf-sonde-les-caeurs-des-systemes-embarques)

9.3.2. Education

- Presentation of Adriana Gogonel at a day organized by a Creteil and Versailles Academy for outreaching Computer Science (April 2019, Paris)

9.3.3. Interventions

- Participation of Adriana Gogonel at a round table entitled "May we innovate within a research institute?" (March 2019, Rocquencourt).

<p style="text-align:center;color:red;">LFANT Project-Team</p>

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Journal

8.1.1.1. Member of the Editorial Boards

X. Caruso is an editor and one of the founders of the journal *Annales Henri Lebesgue*.

J.-M. Couveignes is a member of the editorial board (scientific committee) of the *Publications mathématiques de Besançon* since 2010.

K. Belabas acts on the editorial board of *Journal de Théorie des Nombres de Bordeaux* since 2005 and of *Archiv der Mathematik* since 2006.

H. Cohen is an editor for the Springer book series *Algorithms and Computations in Mathematics (ACM)*.

A. Enge is an editor of *Designs, Codes and Cryptography* since 2004.

8.1.2. Invited Talks

F. Johansson, *Computing with precision*, Tech Talk, Google X, Mountain View, CA, USA (January 2019)

8.1.3. Scientific Expertise

K. Belabas is a member of the "conseil scientifique" of the Société Mathématique de France.

8.1.4. Research Administration

Since January 2015, K. Belabas is vice-head of the Math Institute (IMB). He also leads the computer science support service ("cellule informatique") of IMB and coordinates the participation of the institute in the regional computation cluster PlaFRIM.

He is an elected member of "commission de la recherche" in the academic senate of Bordeaux University.

He was a member of the "Conseil National des Universités" (25th section, pure mathematics) since 2015 until november 2019.

Since January 2017, A. Enge is "délégué scientifique" of the Inria research centre Bordeaux–Sud-Ouest. As such, he is also a designated member of the "commission d'évaluation" of Inria.

He is a member of the administrative council of the Société Arithmétique de Bordeaux, qui édite le *Journal de théorie des nombres de Bordeaux* et qui soutient des congrès en théorie des nombres.

J.-P. Cerri is an elected member of the scientific council of the Mathematics Institute of Bordeaux (IMB) and responsible for the bachelor programme in mathematics and informatics.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master: G. Castagnos, *Cryptanalyse*, 60h, M2, University of Bordeaux, France;

Master: G. Castagnos, *Cryptologie avancée*, 30h, M2, University of Bordeaux, France;

Master: G. Castagnos, *Courbes elliptiques*, 30h, M2, University of Bordeaux, France;

Licence: G. Castagnos, *Arithmétique et Cryptologie*, 24h, L3, Université de Bordeaux, France

Master : D. Robert, *Courbes elliptiques*, 60h, M2, University of Bordeaux, France;

Master: X. Caruso and J.-M. Couveignes, *Algorithmique arithmétique, introduction à l'algorithmique quantique*, 60h, M2, University of Bordeaux, France;

Master : K. Belabas, *Computer Algebra*, 91h, M2, University of Bordeaux, France;

Master: J.-M. Couveignes, *Modules, espaces quadratiques*, 30h, M1, University of Bordeaux, France;

Licence : J.-P. Cerri, *Arithmétique et Cryptologie*, TD, 36h, L3, Université de Bordeaux, France

Licence : J.-P. Cerri, *Algèbre linéaire*, TD, 51h, L2, Université de Bordeaux, France

Licence : J.-P. Cerri, *Topologie*, TD, 35h, L3, Université de Bordeaux, France

Master : J.-P. Cerri, *Cryptologie*, Cours-TD, 60h, M1, Université de Bordeaux, France

Licence: J. Kieffer, *Algorithmique Mathématique 2*, 32h, L3, Université de Bordeaux, France

Master: R. Barbulescu, *Arithmetic algorithms for cryptology*, M2, Master Parisien de Recherche Informatique.

Licence, Master : J.-P. Cerri, 2 TER (L3, M1), 1 Projet (M2), Université de Bordeaux, France

Master : J. Asuncion, *Elliptic curves*, TD, 16h, M1, Universiteit Utrecht (Mastermath), Pays-Bas

8.2.2. Supervision

Master thesis: Jean-Raphaël Biehler, *Functional encryption*, supervised by Guilhem Castagnos

Master thesis: Béranger Seguin, *Deformations of Galois representations*, supervised by Xavier Caruso

Master thesis: William Dallaporta, *Parametrization of ideals and other algebraic structures by quadratic forms*, supervised by Karim Belabas

PhD in progress: Ida Tucker, *Design of new advanced cryptosystems from homomorphic building blocks*, since October 2017, supervised by Guilhem Castagnos and Fabien Laguillaumie

PhD in progress: Abdoulaye Maiga, *Computing canonical lift of genus 2 hyperelliptic curves*, University Dakar, supervised by Djiby Sow, Abdoul Aziz Ciss and D. Robert.

PhD in progress: Jared Asuncion, *Class fields of complex multiplication fields*, since September 2017, supervised by A. Enge and Marco Streng (Universiteit Leiden).

PhD in progress: Elie Eid, *Computing isogenies between elliptic curves and curves of higher genus*, since September 2018, supervised by Xavier Caruso and Reynald Lercier

PhD in progress: Amaury Durand, *Geometric Gabidulin codes*, since September 2019, supervised by Xavier Caruso

PhD in progress: Jean Kieffer, *Computing isogenies between abelian surfaces*, since September 2018, supervised by Damien Robert and Aurel Page

PhD in progress: Pavel Solomatin *Topics on L-functions*, since October 2014, supervised by B. de Smit and K. Belabas.

PhD in progress: Anne-Edgar Wilke *Enumerating integral orbits of prehomogeneous representations*, since September 2019, supervised by K. Belabas.

PhD in progress: Sudarshan Shinde *Cryptographic applications of modular curves* since October 2016, supervised by R. Barbulescu with Pierre-Vincent Koseleff (Sorbonne Université).

8.2.3. Juries

X. Caruso has written a report for the doctoral dissertation by Léo Poyeton, ÉNS de Lyon: *Extensions de Lie p-adiques et (φ, Γ)-modules*.

X. Caruso has written a report for the doctoral dissertation by Christopher Doris, University of Bristol: *Aspects of p-adic computation*.

X. Caruso has written a report for the doctoral dissertation by Joelle Saade, Université de Limoges: *Méthodes symboliques pour les systèmes différentiels linéaires à singularité irrégulière*.

R. Barbulescu was part of the three members jury of the oral examination in mathematics for math-info the admission examination for ENS de Lyon

D. Robert is a member of the jury of Agregations de Mathematiques. He is also the director of the option "calcul formel" of the Modelisation part of the oral examination.

8.3. Popularization

8.3.1. Education

Alkindi : R. Barbulescu is one of the three organizers of the Alkindi contest, a contest for 13-to-15 year old students which gathers more than 60000 participants from France and Switzerland. D. Robert and the other members invite the winners of the Bordeaux region for a 2 hour visit each year.

8.3.2. Interventions

- from 27/05/2019 to 31/05/2019, X. Caruso supervised a stage at the fablab Coh@bit (at IUT Gradignan) to build some educational material
- 30/06/2019, X. Caruso: *Ramène pas ta science* on a physical experiment demonstrating that the fastest path between two points is an arc of cycloid
- 8-10/10/2019, A. Page: *Fête de la Science* at Inria Bordeaux, activity on cryptography (8 groups of students).
- 17/10/2019, X. Caruso and A. Page: *Village des 80 ans du CNRS*, discussion stand "Quizz des idées reçues" on research in mathematics.
- 19/10/2019, X. Caruso and M.-L. Chabanol: *Village des 80 ans du CNRS* on physical experiment demonstrating that the fastest path between two points is an arc of cycloid
- from 07/04/2019 to 14/04/2019, R. Barbulescu was one of two teachers for a math camp in Kinshasa of 150 students https://www.cnrs.fr/insmi/spip.php?article3190.
- from 06/07/2019 to 13/07/2019, R. Barbulescu was the main organiser for a math training camp which gathered the national teams for the International Olympiad of Mathematics of France, Romania and Bulgaria.
- 5/12/2019, D. Robert: small presentations of cryptography for the student of Ecole Normale Superieure de Lyon.

MEXICO Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Serge Haddad is a member of the stering committee of the International Conference on Application and Theory of Petri Nets and Concurrency.

- PHILIPPE DAGUE co-organized with Franck Delaplace the conference on *Computational Systems Biology for Complex Diseases* on November 28-29, 2019 at ENS Paris-Saclay, which gathered around 80 participants.

- PHILIPPE DAGUE, as responsible of the working group BIOSS-IA (Systemic Symbolic Biology and Artificial Intelligence) of the GDR IA, organized the 2019 Day at Orléans on May 27.

- MATTHIAS FUEGGER co-organized the CELLS workshop at DISC'19. The workshop covers topics from computing among a consortium of cells.

- STEFAN HAAR co-directed with Benedikt Bollig the scientific and logistic organisation of the ForMal workshop at ENS Paris-Saclay on cross-fertilization between formal methods and machine learning.

9.1.1.2. Member of the Organizing Committees

- STEFAN HAAR was co-chair and SERGE HADDAD was a member of the Scientific Committee (including organisational issues) of the Digicosme Spring School on Formal Methods and Machine Learning held in June at Cachan *(ForMaL)*.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- STEFAN HAAR was co-chair of program committee for the *40th International Conference on Application and Theory of Petri Nets and Concurrency*, Aachen, Germany, June 23-28, 2019.

9.1.2.2. Member of the Conference Program Committees

- Serge Haddad was a member of the PC of
  - the workshop PNSE associated with ATPN 2019, Aachen, Germany, and
  - the 12th International Conference on Performance Evaluation Methodologies and Tools (VALUETOOLS 2019), Palma de Mallorca, Spain.

- PHILIPPE DAGUE was a member of the program committee of the *30th International Workshop on Principles of Diagnosis DX'19*, Klagenfurt/Austria, November 2019.

- STEFAN HAAR was
  - a member of the programm committee of the *19th International Conference on Applications of Concurrency to Systems Design   (ACSD 2019)*, Aachen, Germany, June 23-28, 2019, and
  - a member of the program committee of the *Workshop Algorithms & Theories for the Analysis of Event Data 2019   (ATAED 2019)*.

- MATTHIAS FUEGGER was
  - Steering commitee member of IEEE ASYNC'19 and
  - PC member of IEEE ASYNC'19 and IEEE DDECS'19.

- THOMAS CHATAIN was
    - a member of the programm committee of the *19th International Conference on Applications of Concurrency to Systems Design* (ACSD 2019), Aachen, Germany, June 23-28, 2019, and
    - a member of the program committee of the *1st International Conference on Process Mining (ICPM 2019)*
- LINA YE was a member of the program committee of the *17th International Workshop on Coordination and Self-adaptativeness of Software Applications* (FOCLASA 2019).
- Stefan Schwoon acted as reviewer for MFCS 2019, FSTTCS 2019, FOSSACS 2019,, TACAS 2019, and STACS 2020.
- LINA YE was
    - a reviewer of the *58th Conference on Decision and Control* (CDC 2019), and
    - a reviewer of the *the 30th International Workshop on Principles of Diagnosis* (DX 2019).

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- STEFAN HAAR is an associate editor for *Journal of Discrete Events Dynamic Systems: Theory and Application* (JDEDS).

9.1.3.2. Reviewer - Reviewing Activities

- Serge Haddad was a reviewer for the following journals:
    - Journal of Logical and Algebraic Methods in Programming,
    - Innovations in Systems and Software Engineering, and
    - Transactions on Petri Nets and Other Models of Concurrency.
- Thomas Chatain was a reviewer for journals *Journal of Discrete Events Dynamic Systems: Theory and Application* (JDEDS) and Fundamenta Informaticae.
- Stefan Schwoon was a reviewer for *Journal of Discrete Event Dynamic Systems* (JDEDS), *Transactions on Software Engineering* (TSE), *Petri Nets and Other Models of Concurrency* (ToPNoC), and Transactions on Programming Languages and Systems (TOPLAS).
- LINA YE is a reviewer for *Journal of IEEE Access* (IEEE Access).

9.1.4. Invited Talks

- Stefan Schwoon gave a talk in the SYBILA seminar of Masaryk University, Brno, on *Diagnosis and Opacity in Partially Observable Systems*.

9.1.5. Scientific Expertise

- Serge Haddad is a member of the scientific and administrative council (CSA) of Labex CIMI of Toulouse and a member of the scientific orientation council (COS) of LIS of Marseille (UMR 7020).

9.1.6. Research Administration

- Serge Haddad is Head of the Computer Science Department of ENS Paris-Saclay.
- Stefan Haar is the president of Inria's COST-GTRI.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- MATHIAS FUEGGER,

    Master :

– *Initiation à la recherche*, 10 h EQTD, M1, ENS Paris-Saclay, France

- STEFAN HAAR,

    Licence : *Langages Formels*, EQTD, L3, ENS Paris-Saclay, France;

    Master :

    – *Analyse de la dynamique des systèmes biologiques*, 10 h EQTD, M1, Université PAris-Saclay, France

    – *Initiation à la recherche*, 10 h EQTD, M1, ENS Paris-Saclay, France

    – *Module SPECIF* , 12 h EQTD, M1, UPMC, France.

    Serge Haddad is head of the Computer Science department of ENS Paris-Saclay. He teaches basic and advanced algorithmics (L3) and probabilistic features of computer science (M1).

    STEFAN SCHWOON

    – Responsable L3 Informatique, ENS Paris-Saclay

    – Enseignement au M1 MPRI : cours *Initiation à la Vérification* (22,5h)

    – Enseignement au L3 Info : cours *Architecture et Système* (45h), projet *Programmation orienté objet* (15h), TD *Langages Formels* (22,5h)

    – Enseignement à l'Aggrétation Maths Option Informatique: cours *Algorithmique* (22,5h)

9.2.2. Supervision

- SERGE HADDAD is supervising with Alain Finkel the PhD thesis of Igor Khmelnitsky on Verification of infinite-state systems and machine learning.

- STEFAN HAAR has been supervising, with Co-superviser Loic Paulevé at LABRI, the PhD theses of

    HUGUES MANDON, *Models and Algorithms for cellular reprogramming strategies prediction*, ENS Paris-Saclay, defended on Nov. 19, 2019, and

    JURAJ KOLCˇÁK, *Parametric Logical Regulatory Networks*, PhD research started in March 2017.

- THOMAS CHATAIN has been supervising, with co-superviser Josep Carmona at Universitat Politècnica de Catalunya (Barcelona, Spain), the PhD thesis of MATHILDE BOLTENHAGEN, *Optimization Techniques for Conformance Checking and Model Repair in Process Mining*, PhD research started in November 2018.

- LINA YE has been supervising, with Co-superviser Philippe Dague at LRI, the PhD these of LULU HE, *Robustness Analysis of Real-Time Systems*, PhD research started in February 2019.

9.2.3. Juries

- PHILIPPE DAGUE was *garant* and member of the HdR jury of Sabine Peres, and a member of the HdR jury of Jean-Marie Lagniez.

- Serge Haddad was the president of the PhD committee of Mauricio Gonzalez defended at ENS Paris-Saclay in November.

- THOMAS CHATAIN has been a jury member for the PhD defense of SAMY JAZIRI (supervisers Patricia Bouyer-Decitre et Nicolas Markey) at Université Paris-Saclay in September 2019.

- THOMAS CHATAIN has been a jury member for the SIF PhD award (Prix de thèse Gilles Kahn 2019).

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- STEFAN HAAR has been the president of COST-GTRI.

<p style="text-align:center;color:red">**MOCQUA Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Mathieu Hoyrup was chair and organizer of the workshop MLA 2019.
- Jointly with Andreas Deutsch (TU Dresden, Germany), Nazim Fatès was chair and organizer of SOLSTICE 2019, Summer Solstice Conference on Discrete Models of Complex Systems.

9.1.1.2. Member of the Conference Program Committees

- Mathieu Hoyrup was member of the PC of CiE 2019.
- Romain Péchoux was member of the PC of DICE and FOPARA 2019.
- Nazim Fatès was member of the PC of AUTOMATA 2019.
- Simon Perdrix was member of the PC of QPL'19.

9.1.1.3. Reviewer

Romain Péchoux was reviewer for DICE and FOPARA 2019, FOSSACS 2019, ICALP 2019, and ISMVL 2019.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- Emmanuel Jeandel is member of the Editorial Board of RAIRO-ITA.
- Nazim Fatès is a member of the Editorial board of the *Journal of cellular automata*.

9.1.2.2. Reviewer - Reviewing Activities

- Romain Péchoux was reviewer for Information Processing Letters and Journal of Automated Reasoning.
- Nazim Fatès served as a reviewer for the *SIAM Journal on Discrete Mathematics* (SIDMA) and for *Informatica*.

9.1.3. Invited Talks

Romain Péchoux gave an invited talk at Shonan seminar #151 on higher order complexity theory and its applications.

9.1.4. Leadership within the Scientific Community

- Romain Péchoux is guest coeditor of the Theoretical Computer Science, special issue on Implicit Computational Complexity, DICE 2016-2018.
- Nazim Fatès is the vice-president of the IFIP WG 1.5 on Cellular Automata and Discrete Complex Systems. He is a guest coeditor of a special issue of *Natural computing* on the theme "Discrete Models of Complex Systems: recent trends and analytical challenges". This call for papers follows the SOLSTICE 2019 conference (Dresden, Germany, July 2019).

9.1.5. Scientific Expertise

- Romain Péchoux is Rapporteur and Expert for the Marie Curie IF call of the European Commission, ERA.
- Nazim Fatès was an evaluator for a funding project of the CONICYT, the Chilean *Comisión Nacional de Investigación Científica y Tecnológica*.
- Simon Perdrix was member of the HCERES evaluation committee of G-SCOP.
- Simon Perdrix was member of the committee "La Recherche" award (Prix du Magazine La Recherche) 2019.

9.1.6. Research Administration

- Emmanuel Hainry was member of the CNU (Conseil National des Universités), Section 27 until 2019, nov 18th.
- Simon Perdrix is elected member and scientific secretary of the CNRS section 6.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Licence
  - Isabelle Gnaedig:
    * To the limits of the computable, 6 hours, Opening course-conference of the collegium "Lorraine INP", Université de Lorraine, Nancy, France.
  - Emmanuel Hainry:
    * Operating Systems, 30h, L1, IUT Nancy Brabois, Université de Lorraine, Nancy, France.
    * Algorithmics, 40h, L1, IUT Nancy Brabois.
    * Dynamic Web, 60h, L1, IUT Nancy Brabois.
    * Databases, 30h, L1, IUT Nancy Brabois.
    * Object Oriented Languages, 16h, L2, IUT Nancy Brabois.
    * Complexity, 30h, L2, IUT Nancy Brabois.
  - Emmanuel Jeandel:
    * Algorithmics and Programming 1, 60h, L1 Maths-Info, Université de Lorraine, Nancy, France.
    * Algorithmics and Programming 4, 30h, L3 Informatique.
    * Modeling Using Graph Theory, 30h, L3 Informatique.
    * Networking, 15h, L3 Informatique.
    * Formal Languages, 30h, L2-L3 Informatique.
  - Romain Péchoux had an Inria delegation (2018-2019).
- Master

- – Isabelle Gnaedig:
  - * Rule-based Programming, 24 hours, M2, Telecom-Nancy, Université de Lorraine, Nancy, France.
- – Emmanuel Hainry:
  - * Mathematics for Computer Science, 15h, M1 TAL, Institut des Sciences du Digital: Management et Cognition, Université de Lorraine, Nancy, France.
- – Mathieu Hoyrup:
  - * Mathematics for Computer Science, 15h, M1 TAL, Institut des Sciences du Digital: Management et Cognition, Université de Lorraine, Nancy, France.
- – Emmanuel Jeandel:
  - * Algorithmics and Complexity, 30h, M1 Informatique, Université de Lorraine, Nancy, France.
  - * Quantum Computing, 15h, M1 Informatique.
- – Nazim Fatès:
  - * Systèmes distribués adaptatifs, 10h, Master 2, informatique, Université de Lorraine, Nancy, France.
  - * Agents intelligents et collectifs, 15h, Master 1, sciences cognitives.
  - * Modèles de calcul, 12h, Master 2, informatique.

9.2.2. Supervision

- Mathieu Hoyrup supervised the L3 internship of Antonin Callard (ENS Paris Saclay), about descriptive set theory on represented spaces.
- Emmanuel Hainry and Romain Péchoux supervised the L3 internship of Olivier Zeyen (FST, Université de Lorraine), on implementing a complexity parser for Java.
- Nazim Fatès supervised the internship of Karim Boutamine and Maxime Thaon, students of Master 1 in Cognitive Sciences (Université de Lorraine) and the internship of Baptiste Collet, student of Licence 3 at École normale supérieure de Paris.
- PhD: Renaud Vilmart, "Langages graphiques pour calculer et raisonner en quantique", defended september 2019, Advisors: Emmanuel Jeandel and Simon Perdrix.
- PhD in progress: Titouan Carette, "Langage diagrammatique pour l'ordinateur quantique", Start: October 2018, Advisors: Emmanuel Jeandel and Simon Perdrix.
- PhD in progress: Pierre Mercuriali, "Calcul à base de médiane et structures médianes pour la classification", Start: October 2016, Advisors: Miguel Couceiro and Romain Péchoux.
- PhD in progress: Robert Booth, "Formalismes pour la vérification de technologies quantiques", Start: November 2018, Advisors: Damian Markham and Simon Perdrix.
- PhD in progress: Alexandre Clément, "Graphical Languages for Quantum Control", Start: September 2019, Advisors: Emmanuel Jeandel and Simon Perdrix.
- PhD in progress: Margarita Veshchezerova, "Quantum Computing for Combinatorial Optimisation", Start: October 2019, Advisors: Emmanuel Jeandel and Simon Perdrix, joint supervision with Marc Porcheron at EDF (CIFRE).

9.2.3. Juries

- Emmanuel Jeandel participated in the PhD defense of Florian Bridoux (Université d'Aix-Marseille), François Pirot (Université de Lorraine and Rahdboud University) and Alexandre Talon (ENS Lyon).
- Emmanuel Jeandel reviewed the PhD thesis of Paulina Cecchi (University of Santiago and Université Paris-Diderot) and Ilya Galanov (Université de Villetaneuse).

- Nazim Fatès reviewed the PhD of Adam Dzedzej (University of Gdańsk, Poland) and served a the main external examiner during the PhD defense.

- Simon Perdrix was external reviewer for the PhD thesis of Kang Feng Ng (Oxford University), March 2019.

- Simon Perdrix was reviewer for the PhD thesis of Matthew Amy (University of Waterloo, Canada), January 2019.

- Simon Perdrix reviewed the PhD thesis of Ghazal Kachigar (University of Bordeaux), December 2019.

9.3. Popularization

9.3.1. Articles and contents

- The scientific magazine *La Recherche* re-published an article by Nazim Fatès and Irène Marcovici, with the title "Les automates cellulaires jouent le jeu", in a Special issue devoted to the theme "Les maths et le réel" (September 2019) [34]. The original article "Automates cellulaires : la complexité dans les règles de l'art" (2018), was modified with minor changes for this special issue.

- Interviews of Simon Perdrix about the Google's result on quantum advantage. La tribune (online article) ; Sciences et Avenir (November 2019 - paper journal and online articles), We demain (online article).

9.3.2. Education

Nazim Fatès participated to a workshop destined to the high-school teachers which were training on the « Information et sciences du numérique » module.

In the lycée Saint-Exupéry de Saint-Dizier: he gave three one-hour conferences destined to students, related to the film *Imitation game* on Alan Turing (March 18).

9.3.3. Interventions

Nazim Fatès was invited to give various talks on the question of artificial intelligence:

- With the European parliamentary association (APE), he was invited to talk to European MP's on the the theme « Is Europe ready for artificial intelligence? » (Strasbourg, February 13).

- In the « Sciences et société » cycle of IUT Charlemagne (September 26).

- With the association « Jardin des sciences », cycle « intelligences » destined to a wide public, University of Strasbourg (October 10).

- With the association Femmes responsables (November 20).

OURAGAN Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Elias Tsigaridas was the program chair of Mathematical Aspects of Computer and Information Sciences (MACIS 2019), which was held at Istanbul, 13-15 November 2019.

10.1.1.2. Member of the Organizing Committees

A. Quadrat was a member of the organization committee of the *Journées Nationales de Calcul Formel* (JNCF), Luminy, France, 04-08/02/2019. He is now a member of the scientific committee of JNCF.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

Elias Tsigaridas was a program committee member of Computer Algebra in Scientific Computing (CASC 2019).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Elisha Falbel is a member of the editorial board of *São Paulo Journal of Mathematical Sciences - Springer*
- Antoine Joux is a member of the editorial board of *Designs, Codes and Cryptography*
- Alban Quadrat is associate editor of *Multidimensional Systems and Signal Processing*, Springer
- Fabrice Rouillier is a member of the editorial board of *Journal of Symbolic Computation*

10.1.4. Leadership within the Scientific Community

Alban Quadrat co-organized the invited sessions *Algebraic and symbolic methods for mathematical systems theory* and *New trends in computational methods for time-delay systems* at the Join *Joint IFAC Conference 7th Symposium on Systems Structure and Control and 15th Workshop on Time Delay Systems*, 9–11 September 2019, Sinaia, Romania

Elias Tsigaridas organized a session on *Algebraic and geometric tools for optimisation and statistics* during the PGMO days 2019, at the EDF'Lab Palaiseau, December 2019.

10.1.5. Research Administration

- Alban Quadrat is a member of the Conseil d'Administration of the Société Mathématique de France (SMF).
- Fabrice Rouillier is a member of the scientific commitee of the Indo French Centre for Applied Mathematics.
- Elisha Falbel is director of the "École Doctorale Sciences Mathématiques de Paris Centre - ED 386".

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Fabrice Rouillier: Course in Algebraic Computations, M1, 24h, Sorbonne Université

- Fabrice Rouillier: Course in "Agrégation Option - C", M2, 31 heures, Sorbonne Université
- Antonin Guilloux: Courses and administration of the general math courses in L1 at Sorbonne Université
- Elisha Falbel: First year 'mathématiques approfondie' and master class on Riemann surfaces.
- Pierre-Vincent Koseleff : head of the Master 2 "pr éparation à l'agrégation de mathématiques" at Sorbonne Université.
- Pierre-Vincent Koseleff : Course in M2 "Agrégation de Mathématiques", Computer Algebra, Option C, 100h. Sorbonne Université.
- Pierre-Vincent Koseleff : Course in L3, "algèbre appliquée".

10.2.2. Supervision

PhD in progress: Thomas Espitau, 09/2016, directed by Antoine Joux

PhD in progress: Natalia Kharchenko, 09/2016, directed by Antoine Joux

PhD in progress: Mahya Mehrabdollahei, 09/2018, directed by Antonin Guilloux and Fabrice Rouillier

PhD in progress: Grace Younes, 09/2018, directed by Alban Quadrat and Fabrice Rouillier

PhD in progress: Christina Katsamaki, 09/2019, directed by Elias Tsigaridas and Fabrice Rouillier

PhD in progress: Sudarshan Shinde, 09/2016, directed by Razvan Barbulescu and Pierre-Vincent Koseleff

PhD in progress: Raphael Alexandre, 09/2019, directed by Elisha Falbel.

10.2.3. Juries

Alban Quadrat was a member of the PhD defense committee of Elisa Hubert, *Surveillance vibratoire d'une transmission de puissance aéronautique*, University of Lyon & Safran Tech, 28/06/2019.

Elisha Falbel was a member of the Habilitation defense committee of Junyan Cao, *Positivité des images directees, extension d'Ohsawa-Takegoshi et applications*, Sorbonne Université , 25/10/2019.

10.3. Popularization

- Alban Quadrat co-edited the book *Le Jeu de rôle sur table : un laboratoire de l'imaginaire*, Carrefour des lettres modernes, n. 7, Classiques Garnier, 2019.
- Fabrice Rouillier is a member of the editorial board of *Interstices*
- Fabrice Rouillier is *chargé de mission médiation* at Inria Paris
- Fabrice Rouillier is a member of the *comité de pilotage de l'année des mathématiques*
- Fabrice Rouillier is a member of the *comité de pilotage de la semaine des mathématiques*
- Fabrice Rouillier is the president of the association *Animath*[0]
- Fabrice Rouillier is member of the scientific board of the SMF [0]conference *Mathématiques étonnantes*[0]

10.3.1. Internal or external Inria responsibilities

- Alban Quadrat is a member of the technical committee *Linear Systems* of the *International Federation of Automatic Control* (IFAC)
- Elias Tsigaridas is a member of the Evaluation committee (Commission d'Évaluation) of Inria.

10.3.2. Interventions

- Fabrice Rouillier participated to the *semaine des mathématiques* for the Paris Inria Paris research center
- Fabrice Rouillier participated to the welcoming of schoolchildren for their *semaine d'observation* at Inria Paris research center.

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[0]http://www.animath.fr

[0]Société Mathématique de France

[0]https://smf.emath.fr/actualites-smf/mathematiques-etonnantes-programme

<h1 style="color:red; text-align:center">PACAP Project-Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Member of the Conference Program Committees

- Caroline Collange is a member of the program committee of the DATE 2020 conference
- Pierre Michaud was a member of the program committee of the International Conference on Computer Design (ICCD 2019)
- Pierre Michaud was a member of the program committee of the Third Data Prefetching Championship (DPC3)
- Isabelle Puaut was a member of the program committee of the Euromicro Conference on Real Time Systems (ECRTS) 2019 and 2020, IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS) 2020, Real Time Systems Symposium (RTSS) in 2019.
- Isabelle Puaut was a member of the program committee of the "Real-Time and (Networked) Embedded Systems" track of IEEE ETFA 2019.
- Isabelle Puaut was a member of the program committee of the International Conference on Real-Time Networks and Systems (RTNS) 2019 and 2020.
- Isabelle Puaut was a member of the program committee of the 18th Workshop on Worst-Case Execution Time Analysis (WCET 2019).
- Erven Rohou and Caroline Collange were members of the program committee of the French *Conférence francophone en informatique autour des thématiques du parallélisme, de l'architecture et des systèmes* (Compas 2019).
- Erven Rohou was a member of the program committee of the Special Session on Compiler Architecture, Design and Optimization (CADO) of HPCS 2019.
- André Seznec was a member of program committee of ACM/IEEE Micro 2019 conference
- André Seznec is a member of program committee of ACM/IEEE ISCA 2020 conference
- André Seznec is a member of program committee of the IPDPS 2020 conference

10.1.1.2. Reviewer

Members of PACAP routinely review submissions to numerous international conferences and events.

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- Isabelle Puaut is Associate Editor of IEEE Transactions on Computers (IEEE TC) and Springer International Journal of Time-Critical Computing Systems.
- André Seznec is a member of the editorial boards of ACM Transactions on Architecture and Compiler Optimization.

10.1.2.2. Reviewer - Reviewing Activities

Members of PACAP routinely review submissions to numerous international journals.

10.1.3. Invited Talks

Erven Rohou and Byron Hawkins gave invited talks at the 13th *rencontres de la communauté française de compilation.*

Erven Rohou gave an invited talk at the GDR SOC2 day in Nantes.

Erven Rohou gave a talk at the Compas 2019 conference.

André Seznec was an invited speaker at the RISC V workshop in Paris.

10.1.4. Leadership within the Scientific Community

Caroline Collange is a member of the steering committee of the *Conférence francophone en informatique autour des thématiques du parallélisme, de l'architecture et des systèmes* (Compas 2019).

Isabelle Puaut is member of the steering committee of RTNS (Real-Time Networks and Systems).

Isabelle Puaut is member of the steering committee of the Worst Case Execution Time (WCET) workshop, held in conjunction with the Euromicro Conference on Real Time Systems (ECRTS).

Isabelle Puaut is member of the steering committee of the Euromicro Conference on Real Time Systems (ECRTS).

10.1.5. Research Administration

Isabelle Puaut is member of the Research Council (*Commission Recherche*) of the Université de Rennes 1. She is member of the working group "Habilitation à Diriger des Recherches".

Isabelle Puaut is member of the board of directors (*Conseil d'Administration*) of ISTIC (computer science and electrical engineering departement of Université de Rennes 1).

Erven Rohou is "correspondant scientifique des relations internationales" for Inria Rennes Bretagne Atlantique. As such he is a member of the Inria COST GTRI (Groupe de Travail "Relations Internationales").

Erven Rohou is a member of the steering committee of the high security research laboratory (LHS).

Erven Rohou is a member of the "Comité de Centre" of the Inria Rennes Research Center.

André Seznec is an elected member of the Administration Council of Inria.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Licence: Nicolas Bellec, Système, 14 hours, L3, Université de Rennes 1, France
- License: Nicolas Bellec, Informatique, 14 hours, L1, Lycée Chateaubriand (Rennes), France
- Arthur Blanleuil, SYS1 (Systèmes mono-utilisateur), 18 hours, M1, Université Rennes 1, France
- Arthur Blanleuil, NOY (Systèmes d'exploitation – implémentation de noyaux de systèmes), 22 hours, M1, Université Rennes 1, France
- Arthur Blanleuil, SE (Système d'Exploitation), 24 hours, M1, Université Rennes 1, France
- Master: C. Collange, GPU programming, 20 hours, M1, Université de Rennes 1, France
- Licence: D. Hardy, Real-time systems, 68 hours, L3, Université de Rennes 1, France
- Master: D. Hardy, Operating systems, 59 hours, M1, Université de Rennes 1, France
- Master: Kévin Le Bon, Architecture à Objet Canonique, 20 hours, M2, Université de Rennes 1, France
- Licence: Kévin Le Bon, SI2, 40, L1, Université de Rennes 1, France
- Master: I. Puaut, Operating systems: concepts and system programming under Linux (SEL), 77 hours, M1, Université de Rennes 1, France
- Master: I. Puaut, Operating systems kernels (NOY), 54 hours, M1, Université de Rennes 1, France
- Master: I. Puaut, Real-time systems, 40 hours, M1, Université de Rennes 1, France
- Master: I. Puaut, Optimizing and Parallelizing Compilers (OPC), 9 hours, M2, Université de Rennes 1, France

- Master: I. Puaut, Writing of scientific publications, 9 hours, M2 and PhD students, Université de Rennes 1, France
- Master: A. Seznec, Advanced Design and Architectures, 12 hours, M2 SIF, Université de Rennes 1.

10.2.2. Supervision

PhD: Arif Ali Ana-Pparakkal, *Performance Centric Dynamic Function Level Binary Transformation* [15], Université de Rennes 1, 9 Dec 2019, advisor E. Rohou

PhD in progress : Nicolas Bellec, *Security in real-time embedded systems*, started Dec 2019, advisors I. Puaut (50 %), G. Hiet from CIDRE (25 %), F. Tronel from CIDRE (25 %)

PhD in progress: Arthur Blanleuil, *Thread convergence prediction for SIMT architectures*, Université de Rennes 1, started Oct 2018, advisor C. Collange and A. Seznec

PhD in progress: Niloofar Charmchi, *Hardware prefetching and related issue*, Université de Rennes 1, started Jan 2017, advisors A. Seznec and C. Collange

PhD in progress: Kleovoulos Kalaitzidis, *Ultrawide Issue Superscalar Processors*, Université de Rennes 1, started Dec 2016, advisor A. Seznec

PhD in progress : Kévin Le Bon, *Dynamic Binary Analysis and Optimization for Cyber-Security*, started Dec 2018, advisors E. Rohou (30 %), G. Hiet from CIDRE (35 %), F. Tronel from CIDRE (35 %)

PhD in progress: Daniel Rodrigues Carvalho, *Towards a compressed memory hierarchy*, Université de Rennes 1, started Oct 2017, advisor A. Seznec

PhD in progress : Bahram Yarahmadi, *Compiler Optimizations and Worst-Case Energy Consumption*, started Feb 2018, advisor E. Rohou

10.2.3. Juries

Isabelle Puaut was a member of the following PhD thesis and habilitation thesis committees:

- Muhammad Refaat Sedky Soliman (PhD thesis), *Automated Compilation Framework for Scratchpad-based Real-Time Systems*, University of Waterloo, Canada, Juin 2019 (reviewer)
- Amine Naji (PhD thesis), *Timing Analysis for Time-Predictable Architectures*, Sorbonne Université, June 2019 (reviewer)
- Luca Santinelli (habilitation), *Mixed Criticality Modeling and Analysis Paradigms for Real Time Embedded Systems*, Habilitation à diriger des recherches, Institut National Polytechnique de Toulouse, May 2019 (reviewer)
- Roberto Medina (PhD thesis), *Deployment of Mixed-Criticality and Data-Driven Systems on Multicore Architectures*, Université de Paris Saclay, January 2019

Isabelle Puaut was a member of the following hiring committees of assistant professors/professors:

- Professor, Université de Bretagne Occidentale, "methods and tools for the design of embedded systems, Systems on Chips, embedded systems and architectures"
- Professor, ENS Lyon
- Assistant professor, Université de Strasbourg, "performance, modeling and simulation"
- Assistant professor, ISAE-ENSMA Poitiers, "embedded real-time systems, data and model engineering"

Erven Rohou was a member of the following hiring committee (comités de sélection):

- Assistant professor position at Université de Grenoble on cloud and edge computing

Erven Rohou was a member of the following PhD thesis committees:

- Julien Proy, *Sécurisation systématique d'applications embarquées contre les attaques physiques*, June 2019 (reviewer).
- Nicolas Belleville, *Compilation pour l'application de contre-mesures contre les attaques par canal auxiliaire*, Université Grenoble Alpes, Nov 2019 (reviewer).
- Patryk Kiepas, *Performance analyses and code transformations for MATLAB applications*, Dec 2019 (reviewer).
- Paul Godard, *Parallélisation et passage à l'échelle durable d'une chaîne de traitement graphique pour l'impression professionnelle*, Université de Strasbourg, Dec 2019 (reviewer).

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Caroline Collange is a member of the committee of the Gilles Kahn PhD prize of Société Informatique de France.

10.3.2. Articles and contents

- Erven Rohou gave an interview in the *Émergences* magazine on (volume 56, Mar 22nd 2019) on automatically masking sensitive information to protect against side-channel attacks.

10.3.3. Education

Nicolas Bellec and Isabelle Puaut taught *Basics of computer architecture*, a training of high school teachers as part of the opening of the new computer science option in the two final years before Baccalauréat, 10 hours.

Erven Rohou was invited to present the life of a researcher in computer science to middle school students (*Collège de Cesson-Sévigné*)

10.3.4. Interventions

Erven Rohou was present at the International Cybersecurity Forum in Lille (FIC https://www.forum-fic.com/en/home.htm). He presented a demo on compiler-generated countermeasures against side-channel attacks, developed within the context of the CHIST-ERA SECODE project.

10.3.5. Internal action

Erven Rohou presented the activities of PACAP at the SecDays event organized at Inria Rennes and IRISA.

PARKAS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Chair of Conference Program Committees

- T. Bourke co-chaired the program committee of the ACM/IEEE international conference on Embedded Software (EMSOFT 2019).

9.1.1.2. Member of the Conference Program Committees

- T. Bourke served on the PC of the Euromicro Conference on Real-Time Systems (ECRTS 2019).
- T. Bourke served on the PC of the international workshop on Software and Compilers for Embedded Systems (SCOPES 2019).
- T. Bourke served on the PC of the international Modelica conference (MODELICA 2019).
- T. Bourke served on the PC of the OCaml Users and Developers Meeting (OCaml 2019).
- M. Pouzet served on the PC of the program committee of the ACM/IEEE international conference on Embedded Software (EMSOFT 2019).
- M. Pouzet served on the PC of the international workshop on Software and Compilers for Embedded Systems (SCOPES 2019).
- M. Pouzet served on the PC of the international workshop on Cyber-Physical Systems (CyPhy), a satellite event of ESWEEK.
- F. Zappa Nardelli served on the PC of the international conference on Object-Oriented Programming, Systems, Languages & Applications (OOPSLA 2019).
- F. Zappa Nardelli served on the PC of the ACM Workshop on Gradual Types (WGC 2020).

9.1.1.3. Reviewer

- T. Bourke reviewed submissions for the international conference on Computer Aided Verification (CAV 2019)
- T. Bourke reviewed submisssions for the international conference on Object-Oriented Programming, Systems, Languages & Applications (OOPSLA 2019).

9.1.2. Journal

9.1.2.1. Reviewer - Reviewing Activities

- T. Bourke reviewed articles for the Journal of Logical and Algebraic Methods in Programming (JLAMP).

9.1.3. Research Administration

- F. Zappa Nardelli chaired the part-time assistant professor recruitment committee at École Polytechinque.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Marc Pouzet is Director of Studies for the CS department, at ENS.

Licence : M. Pouzet & T. Bourke: "Operating Systems" (L3), Lectures and TDs, ENS, France.

Licence : T. Bourke, "Digital Systems" (L3), Lectures and TDs, ENS, France

Master: M. Pouzet & T. Bourke: "Synchronous Systems" (M2), Lectures and TDs, MPRI, France

Master: M. Pouzet: "Synchronous Reactive Languages" (M2), Lectures, Master COMASIC (École Polytechnique) and FIL (Université Paris-Sud, Saclay), France

Master: T. Bourke, lab classes for "A Programmer's introduction to Computer Architectures and Operating Systems" (M1), École Polytechnique, France

Master: F. Zappa Nardelli: "A Programmer's introduction to Computer Architectures and Operating Systems" (M1), 45h, École Polytechnique, France

Bachelor: F. Zappa Nardelli: "A Programmer's introduction to Computer Architectures and Operating Systems", 20h, École Polytechnique, France

Internships T. Bourke participated in reviewing the L3 and M1 internships of students at the ENS, France.

M1 Projects: T. Bourke is directing two M1 research projects.

9.2.2. Supervision

- PhD in progress: Lélio Brun, under review, supervised by T. Bourke and M. Pouzet.
- PhD in progress: Ismail Lakhim-Bennani, 1st year, supervised by M. Pouzet, G. Frehse, and T. Bourke
- PhD in progress: Basile Clément, 1st year, supervised by F. Zappa Nardelli and M. Pouzet.
- PhD: Chandan Reddy, supervised by A. Cohen, defended in March 2019.
- PhD: Ulysse Beaugnon, supervised by A. Cohen and M. Pouzet, defended in June 2019.

9.2.3. Juries

- T. Bourke was a jury member for the for the PhD thesis of Steven Varoumas, November 2019.
- F. Zappa Nardelli was a jury member for the PhD thesis of Francois Ginraud, Grenoble, Jan 2019.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- T. Bourke participated in the *commission d'emplois scientifiques* (postdocs, delegations, and PhDs) for the Inria Paris research centre.
- T. Bourke participated in the PhD progress committees (*suivi doctorale*) for B. Medeiros de Barros and N. Kulatova.
- T. Bourke and M. Pouzet participated in meetings with the *Ministère de la Transition écologique et solidaire* on the validation of autonomous driving systems.

PARSIFAL Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Dale Miller is currently General Chair for the ACM/IEEE Symposium on Logic in Computer Science (LICS).

10.1.1.2. Member of the Organizing Committees

Dale Miller is member of the Steering Committee for CPP, FSCD, and LFMTP and is a member of the Executive Committee of the ACM Special Interest Group on Logic and Compuation (SIGLOG).

Gabriel Scherer is part of the Steering Committee of the ML Family Workshop and the OCaml Workshop.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

Dale Miller was program committee co-chair for the workshop on Logical Frameworks and Meta Languages: Theory and Practice (LFMTP), 2019, Vancouver, Canada.

10.1.2.2. Member of the Conference Program Committees

- Gabriel Scherer: JFLA 2020.
- Beniamino Accattoli: LSFA 2019.
- Dale Miller is a PC member for the 10th International Joint Conference on Automated Reasoning (IJCAR-2020), the 23rd International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR-23), and the Workshop on Trends, Extensions, Applications and Semantics of Logic Programming (TEASE-LP).

10.1.2.3. Reviewer

- Gabriel Scherer: POPL 2020, ESOP 2020.
- Lutz Straßburger: FoSSaCS 2020, CSL 2020, TABLEAUX 2019, WoLLIC 2019, LICS 2019.
- Beniamino Accattoli: FoSSaCS 2020, POPL 2020, ICALP 2019, ICTAC 2019, PPDP 2019, FSCD 2019, CSL 2019, LSFA 2019.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Dale Miller is on the editorial board of the Journal of Automated Reasoning (Springer) and the Jounral of Applied Logic (Elsevier). He has also been an editor for a special issue of FSCD 2017 for Logical Methods in Computer Science.

10.1.3.2. Reviewer - Reviewing Activities

- Lutz Straßburger: APAL, ToCL, BSL, LMCS.
- Beniamino Accattoli: LMCS, TCS.
- Dale Miller has served on the evaluation committee for the EATCS Distinguished Dissertation Award and the EACSL Ackermann Award. He was also the Chair of the Herbrand Award Committee of the Association for Automated Reasoning.

10.1.4. Invited Talks

- Beniamino Accattoli has been invited speaker at FSCD 2019.
- Dale Miller has been an invited speaker at the Workshop on Proof Theory for Automated Deduction, Automated Deduction for Proof Theory (23-25 October 2019, Funchal, Madeira) and the Third Tübingen Conference on Proof-Theoretic Semantics, 27-30 March 2019.

10.1.5. Scientific Expertise

- Lutz Straßburger: reviewer for the Israel Science Foundation.
- Dale Miller has been a member of an international review panel for the Distinguished Professor Grant at the Swedish Research Council.
- Gabriel Scherer: reviewer for ANR.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : G. Scherer, "*Introduction á la programmation fonctionnelle*", 50h, L1, Paris 8 (Vincennes - Saint Denis), France

Master: B. Accattoli, "*Logique linéaire et paradigmes logiques du calcul*", 18h, M2, Master Parisien de Recherche en Informatique (MPRI), France.

Master: D. Miller, "*Logique linéaire et paradigmes logiques du calcul*", 18h, M2, Master Parisien de Recherche en Informatique (MPRI), France.

Summer School: G. Scherer, "*Programmation fonctionnelle en OCaml*", 12h, public d'ingénieurs de recherche, formation ANF (CNRS), France

Summer School: L. Straßburger: "*Introduction to Deep Inference*", 10h, ESSLLI 2020, Riga, Latvia

Summer School: B. Accattoli, "*λ-Calculus and Reasonable Cost Models*", 15h, Escuela de Ciencia Informaticas (ECI 2019), Buenos Aires, Argentina.

10.2.2. Supervision

- PhD in progress: Marianela Morales, "Combinatorial Proof Theory for Modal Logic", 1/10/2019, Lutz Straßburger.
- PhD in progress: Maico Leberle, "Call-by-need and Reasonable Cost Models", Beniamino Accattoli.
- PhD completed: Ulysse Gérard, "Computing with relations, functions, and bindings", 18 October 2019, Ecole Doctorale de l'Institut Polytechnique de Paris, advised by Dale Miller.
- PhD in progress: Matteo Manighetti, "Structural proof theory for induction in linear logic", advised by Dale Miller since 1/10/2017.
- PhD in progress: Marianela Morales, "Combinatorial Proof Theory for Modal Logic", 1/10/2019, Lutz Straßburger

10.2.3. Juries

Dale Miller was a reportor for the PhD thesis of Aurore Alcolei (ENS Lyon, 17 October 2019).

10.3. Popularization

10.3.1. Interventions

G. Scherer and M. Manighetti participated the "Fête de la Science" exhibit at Inria Saclay on the whole day of October 11th, 2019.

G. Scherer presented the research domain of certified programming to an audience of computer security professionals at the "Pass the Salt" conference in Lille, on Wednesday July 3rd.

PESTO Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

- V. Cortier: vice-chair of the ACM Special Interest Group on Logic and Computation (SigLog); vice-chair of the IFIP Wg-1.7 Foundations of Security Analysis.
- J. Dreier: GRSRD 2019, Grande Region Security and Reliability Day 2019, Nancy, March 2019 (chair)

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- V. Cortier: POST 2019, E-VoteID 2019 (Track chair), S&P 2019, CSF 2019, Voting 2020, Concur 2020, S&P 2020
- V. Cheval: CSF 2020
- J. Dreier: SEC@SAC 2020, 5G-NS 2019, SP5G@ICISSP 2020
- L. Hirschi: SEC@SAC 2020
- A. Imine : ICEIS 2019, DEXA 2019, VLIoT@VLDB 2019, C2SI 2019
- S. Kremer: Euro S&P 2019, Voting 2019, PERR 2019, ESORICS 2019, FSTTCS 2019, CSF 2020, Euro S&P 2020, Voting 2020
- C. Ringeissen: UNIF 2019, FroCoS 2019, WRLA 2020, IJCAR 2020, UNIF 2020
- M. Rusinowitch: IWSPA 2019, STM 2019, CRISIS 2019, IWSPA 2020

10.1.3. Journal

10.1.3.1. Editor in Chief

- V. Cortier: Journal of Computer Security (EiC since November 2019)

10.1.3.2. Member of the Editorial Boards

- V. Cortier: Information & Computation, Journal of Computer Security, ACM Transactions on Privacy and Security (TOPS, previously TISSEC), Foundations and Trends (FnT) in Security and Privacy

10.1.4. Invited Talks

- V. Cortier. Keynote speaker at the ACM SIGSAC 14th Workshop on Programming Languages and Analysis for Security (PLAS 2019), London, UK, November 2019.
- V. Cortier. Keynote speaker at the 24th European Symposium on Research in Computer Security (Esorics 2019), Luxembourg, September 2019.
- V. Cortier. Plenary talk at the 28th edition of Computer Science Logic (CSL 2020), Barcelona, Spain, January 2020.
- S. Kremer. Keynote speaker at the ACM SIGSAC 14th Workshop on Programming Languages and Analysis for Security (PLAS 2019), London, UK, November 2019.
- V. Cheval. Invited talk at the Rendez-vous de la Recherche et de l'Enseignement de la Sécurité des Systèmes d'Information, RESSI 2019, Erquy, France, May 2019.

10.1.5. Scientific Expertise

- V. Cortier: Member of the W&T5ASP panel of the Research Foundation - Flanders (FWO), Belgium
- A. Imine: ANR project expertise
- L. Hirschi: ANR project expertise
- M. Rusinowitch: FNRS project expertises, Belgium

10.1.6. Research Administration

Inria evaluation committee (S. Kremer)
Inria Committee on Gender Equality and Equal Opportunities (S. Kremer, co-chair)
Jury Junior Research Position Inria Paris (S. Kremer)
Computer science commission of the Doctoral School, Univ Lorraine (L. Vigneron, chair)
Jury Associate Professor at IT University Copenhagen (J. Dreier)
Jury Assistant Professor at EISTI school/ETIS laboratory, Cergy (J. Dreier)
Scientific Council of the Computer Science CNRS Institute INS2I (V. Cortier)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Licence:

  V. Cheval, Introduction to Theoretical Computer Science (Logic, Languages, Automata), 38 hours (ETD), TELECOM Nancy

  J. Dreier, Introduction to Theoretical Computer Science (Logic, Languages, Automata), 38 hours (ETD), TELECOM Nancy

  J. Dreier, Awareness for Cybersecurity, 7.5 hours (ETD), TELECOM Nancy

  L. Hirschi, Introduction to Theoretical Computer Science (Logic, Languages, Automata), 38 hours (ETD), TELECOM Nancy

- Master:

  V. Cortier, Security of flows, 16 hours, M2 Computer Science, TELECOM Nancy and Mines Nancy

  V. Cortier, Security of flows, 8 hours, M2 Computer Science, TELECOM Nancy and Mines Nancy

  J. Dreier, Introduction to Cryptography, 42 hours, M1 Computer Science, TELECOM Nancy

  A. Imine, Security for XML Documents, 12 hours (ETD), M1, Univ Lorraine

  S. Kremer, Security Theory, 24 hours (ETD), M2 Computer science, Univ Lorraine

  C. Ringeissen, Decision Procedures for Software Verification, 24 hours (ETD), M2 Computer science, Univ Lorraine

  L. Vigneron, Security of information systems, 32 hours (ETD), M2 Computer science, Univ Lorraine

  L. Vigneron, Advanced Security, 28 hours (ETD), Polytech Nancy – Information Systems and Networks, Univ Lorraine

  L. Vigneron, Security of information systems, 16 hours (ETD), M2 MIAGE – Audit and Design of Information Systems, Univ Lorraine

- Summer School:

  V. Cortier. Models and Techniques for Analysing Security Protocols, Winter School of the VMCAI 2019 conference, Cascais/Lisbon, Portugal, January 2019.

10.2.2. Supervision

- PhD defended in 2019:

  Joseph Lallemand, Electronic Voting: Definitions and Analysis Techniques [8], November 2019 (V. Cortier)

- PhD in progress:

  Ahmad Abboud, Compressed and Verifiable Filtering Rules in Software-defined Networking, started in August 2018 (A. Lahmadi, M. Rusinowitch and A. Bouhoula)

  Bizhan Alipour, Privacy protection against inference attacks in social networks, started in October 2018 (A. Imine, M. Rusinowitch)

  Charlie Jacomme, Security protocols: new properties, new attackers, new protocols, started in September 2017 (H. Comon and S. Kremer)

  Itsaka Rakotonirina, Efficient verification of equivalence properties in cryptographic protocols, started in October 2017 (V. Cheval and S. Kremer)

10.2.3. *Juries*

Jury member for J. M. López Becerra, University of Luxembourg (S. Kremer).

Jury president for Hoang-Long Nguyen, University of Lorraine (M. Rusinowitch)

10.3. Popularization

10.3.1. *Articles and contents*

Véronique Cortier. Some interactions (in collaboration with P. Gaudry and S. Glondu) with France Culture to improve an online article on e-voting.

Steve Kremer co-authored (with L. Mé, D. Rémy and V. Roca) Inria's White Book on Cybersecurity [27].

Steve Kremer In Horizon - The EU Research and Innovation Magazine: Online voting isn't ready for high-stakes elections, Avril 2019.

Steve Kremer, Ludovic Mé, Didier Rémy, and Vincent Roca. In Blog Binaire - Le Monde. La cybersécurité aux multiples facettes.

Steve Kremer. Le vote électronique. Chapter of the book "Treize défis pour la Cybersécurité" édited by CNRS. To appear in January 2020.

Interview with Science & Vie Junior about 5G security (J. Dreier, in "Pourquoi la 5G va tout changer", Science & Vie Junior, Juillet 2019)

Lucca Hirschi, Ralf Sasse, Jannik Dreier in ERCIM News 2019. "Security Issues in the 5G Standard and How Formal Methods Come to the Rescue".

10.3.2. *Interventions*

Invited conference at the Espace des sciences, Rennes (audience of about 300 people, 5K+ views on Youtube), October, 22nd, 2019 (V. Cortier)

"breakfast" in the Senat, on Cybersecurity, organized by OPECST / Académie des sciences / Académie de médecine, June 19th, 2019. (V. Cortier)

How to explain security protocols with Playmobil, group of high school students interns for a week, February 3rd, 2019, (V. Cortier)

<h1 style="text-align:center; color:red">PI.R2 Project-Team</h1>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

Alexis Saurin, as coordinator of GT-Scalp is member of the organizing committee of the annual meeting of the working group. In 2019, the annual meeting took place in ENS Lyon in October 2019: https://www.irif.fr/gt-scalp/journees-2019.

9.1.1.2. Member of the Steering Committees

Pierre-Louis Curien is member of the steering committee of the international workshop Games for Logic and Programming Languages (GaLop).

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

Pierre-Louis Curien is member of the program committee of Formal Structures for Computation and Deduction 2020, Paris, June-July 2020.

Yann Régis-Gianas was member of the program committee of Software Language Engineering 2019.

Alexis Saurin was a member of the program committee of Circularity in Syntax and Semantics, held in Gothenbug in November 2019.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Pierre-Louis Curien is editor in chief of the Cambridge University Press journal Mathematical Structures in Computer Science (since January 2016). Alexis Saurin is a guest editor of the special issue of MSCS on structural proof theory, automated reasoning and computation in celebration of Dale Miller's 60th birthday published in September 2019.

9.1.3.2. Reviewer - Reviewing Activities

Pierre Letouzey has done several reviews for the Journal of Functional Programming (JFP) and for Science of Computer Programming. Yann Régis-Gianas reviewed a paper for Transactions on Programming Languages and Systems (TOPLAS).

9.1.4. Invited Talks

Hugo Herbelin gave an invited talk on the logical structure of choice and bar induction principles at the Proof, Computation and Complexity workshop (Mittag-Leffler institute). Yann Régis-Gianas gave an invited talk at the DeepSpec workshop of PLDI 2019 about FreeSpec.

9.1.5. Conferences and schools attended

Pierre-Louis Curien presented his joint work on Proofs and surfaces at the conference Topology, Algebra, and Categories in Logic (TACL) 2019, Nice, in June 2019.

Pierre-Louis Curien and Yves Guiraud attended the workshop Homotopy meets homology, Dublin, May 2019.

Pierre-Louis Curien and Yves Guiraud attended the *Higher Structures* conference, Marseille, January 2019.

Pierre-Louis Curien and Cédric Ho Thanh attended the Category Theory 2019 conference, Edinburgh, July 2019.

Pierre-Louis Curien attended Martin Hofmann Memorial Meeting, Munich, July 2019.

Abhishek De attended the Proof Society summer school at Swansea in September 2019.

Cédric Ho Thanh attended the Summer school on Topology, Algebra, and Categories in Logic at Ile de Porquerolles in June 2019.

Hugo Herbelin and Hugo Moeneclaey attended the Types Conference, Oslo, June 2019.

Hugo Moeneclaey attended the International Conference on Homotopy Type Theory (HoTT 2019) and the associated Homotopy Type Theory Summer School, Pittsburgh, August 2019.

Hugo Herbelin attended the Third Workshop on Mathematical Logic and its Applications, Nancy, March 2019.

Hugo Herbelin attended the Workshop Facets of Realizability, Cachan, July 2019.

9.1.6. Leadership within the Scientific Community

9.1.6.1. Scientific Expertise

Hugo Herbelin was a member of the HCERES committee evaluating the MICS laboratory of Centrale Supelec.

9.1.6.2. Research Administration

Pierre-Louis Curien has been a member of the Scientific Council of the CIRM (Centre International de Rencontres Mathématiques) until February 2019.

Pierre-Louis Curien was a member of the scientific council of the Computer Science department of University Paris Diderot until May 2019.

Yves Guiraud was the coordinator of the Proofs, Programs and Systems (PPS) pole at IRIF, and a member of the IRIF comité de direction, until August 2019. Since September 2019, Hugo Herbelin coordinates the PPS pole.

Yves Guiraud was a member of the Conseil Scientifique of the CS department of Univ. Paris Diderot until June 2019.

Yves Guiraud is a member of the Conseil Scientifique of the Math department of Univ. Paris Diderot since April 2019.

Alexis Saurin is a coordinator of the Scalp working group of GDR Informatique Mathématique: https://www.irif.fr/gt-scalp/index

Alexis Saurin is member of the "commission recherche" of both Faculté des Sciences and Faculté Société et humanités at Université de Paris.

Alexis Saurin and Hugo Herbelin are members of the IRIF conseil de laboratoire.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Master: Matthieu Sozeau, Assistants de Preuve, 18h ETD, MPRI, University Paris Diderot.
- Master: Pierre-Louis Curien, Models of programming languages: domains, categories, games (together with Thomas Ehrhard and Paul-André Melliès), 15h, MPRI, University Paris Diderot.
- Master level: Pierre-Louis Curien taught a course on the Foundations of Programming Languages at East China Normal University (4 hours, November-December 2019).
- Master: Hugo Herbelin taught a class on Homotopy Type Theory (together with Nicolas Tabareau), 24h, LMFI, University Paris Diderot.
- Master: Pierre Letousey teaches two short courses to the LMFI Master 2 students : "Programming in Coq" and "Introduction to computed-aided formal proofs". These two courses come in addition to Pierre Letousey's regular duty as teacher in the Computer Science department of University Paris Diderot (including a course on Compilation to M2-Pro students and a course on computed-aided formal proofs to M1 students).

- Master: Yann Régis-Gianas, Functional programming and Type Systems, 12h, MPRI (in addition to four other courses at the master level in University Paris Diderot).
- Master: Alexis Saurin, Outils classiques pour la correspondance de Curry-Howard, 24H, LMFI.
- Summer school: Pierre-Louis Curien gave an introductory mini-course on Homotopy type theory at the Fifteenth International Tbilisi Summer School in Logic and Language, Georgia, in September 2019 (3h).
- Summer school: Hugo Herbelin gave a lecture on type theory at the EUTypes Summer School, Ohrid, in September 2019 (4h).
- Yann Régis-Gianas organised the 4th session of the OCaml MOOC on the FUN platform.
- Yann Régis-Gianas organised the "Journée Francilienne de Programmation", a programming contest between the first years students of University Paris Sorbonne, University Paris Saclay and University Paris Diderot.

9.2.2. Supervision

9.2.2.1. PhD Supervision

- PhD started: Félix Castro, Computational contents of the model of constructible sets, cotutelle between Université Paris Diderot and Universidad de la República (Montevideo, Uruguay), started in September 2019, supervised by Hugo Herbelin and Alexandre Miquel.
- PhD Started: Kostia Chardonnet, Inductive and coinductive types in quantum programming languages, Université Paris Saclay, started in November 2019, supervised by Alexis Saurin and Benoît Valiron.
- PhD started: Alen Durić, Normalisation for monoids and higher categories, Université Paris Diderot, started in October 2O19, supervised by Yves Guiraud and Pierre-Louis Curien.
- PhD started: Colin Gonzalez, Certified compilation of spreadsheets as Tezos smart contract, CIFRE, started in September 2019, supervised by Yann Régis-Gianas and Benjamin Canou (Nomadic Labs).
- PhD started: Farzad Jafar-Rahmani, Denotational semantics of circular and non-well-founded proofs, Université Paris Diderot, started in October 2019, supervised by Thomas Ehrhard and Alexis Saurin.
- PhD started: Hugo Moeneclaey, Syntax of spheres in homotopy type theory, Université Paris Diderot, started in September 2019, supervised by Hugo Herbelin.
- PhD in progress: Antoine Allioux, Opetopes in Type Theory, Université Paris Diderot, since March 2018, supervised by Yves Guiraud and Matthieu Soseau.
- PhD in progress: Abhishek De, Proof-nets for fixed-point logics and non-well-founded proofs, Université Paris Diderot, since October 2018, supervised by Alexis Saurin.
- PhD in progress: Cédric Ho Thanh, Opetopes for higher-dimensional rewriting and koszulity, Université Paris Diderot, since September 2017, supervised by Pierre-Louis Curien and Samuel Mimram.
- PhD in progress: Lucas Massoni Sguerra, Formal verification of mechanism design, Université PSL, since January 2018, supervised by Gérard Memmi, Fabien Coelho, and Emilio J. Gallego Arias.
- PhD in progress: Rémi Nollet, Validity conditions for circular proofs, Université Paris Diderot, since October 2016, supervised by Alexis Saurin and Christine Tasson.
- PhD in progress: Théo Winterhalter, Metatheory and certified implementation of type theories, Université de Nantes, since September 2017, supervised by Nicolas Tabareau and Matthieu Sozeau.
- PhD ended: Gaëtan Gilbert, A type theory with definitional proof-irrelevance, École Nationale Supérieure Mines-Télécom Atlantique Bretagne Pays de la Loire - IMT Atlantique, defended on 20 December 2019, supervised by Nicolas Tabareau and Matthieu Sozeau.
- PhD ended: Théo Zimmermann, Challenges in the collaborative evolution of a proof language and its ecosystem, Université Paris Diderot, defended on 12 December 2019, supervised by Hugo Herbelin and Yann Régis-Gianas.

9.2.2.2. Internships

- Hugo Herbelin supervised the master internship of Adrien Champougny on a type-theoretic presentation of Primitive Recursive Arithmetic.
- Hugo Herbelin supervised the master internship of Hugo Moeneclaey on a syntax and semantics for cubical type theory with definitional univalence.
- Yann Régis-Gianas supervised the third-year licence internship of Alexandre Moine about the detection of clones in OCaml programs.
- Yann Régis-Gianas supervised the first-year master internship of Astyax Nourel and Sébastien Lecleire about the implementation of an instance server for Learn-OCaml.
- Yann Régis-Gianas cosupervised with Thomas Letan (ANSSI) the master internship of Vincent Tourneur about the certification of a Unix utility using FreeSpec.
- Alexis Saurin supervised the first-year master internship of Lucien David about Coq formalisation of circular proof systems.
- Alexis Saurin cosupervised with Benoît Valiron the MPRI internship of Kostia Chardonnet on (co)inductive types in reversible programming languages.

9.2.3. Juries

- Hugo Herbelin was reviewer of the PhD of Ulysse Gérard.
- Hugo Herbelin was president of the PhD committee of Kenji Maillard.
- Alexis Saurin was member of the jury of the entrance competition to Écoles normales supérieures, in charge of the computer science exam (informatique-mathématiques), for the last three years.

9.3. Popularisation

9.3.1. Internal or external Inria responsibilities

- Yves Guiraud is "correspondant communication" for IMJ-PRG at INSMI.
- Yann Régis-Gianas is "correspondant communication" for IRIF at INS2I.
- Jean-Jacques Lévy is member of the Inria-Alumni's executive committee (4 meetings in 2019).

9.3.2. Education

- Yann Régis-Gianas presented the Learn-OCaml project at the OCaml workshop, at the OCaml Meetup, at the University of Lisbon and at the JFLA.
- Yann Régis-Gianas gave a talk at the conference of CPGE teachers of computer science to present the Learn-OCaml project.

9.3.3. Interventions

- Jean-Jacques Lévy was invited by the French Academy of Sciences to participate to the Nanjing Tech Week (June 22-24) and to visit the new Qingdao International Academician Park (June 28). He also visited the Institute of Software of the Chinese Academy of Sciences (ISCAS) on July 1-3.
- Jean-Jacques Lévy as a member of the AEFC (Association des Experts France Chine) was invited to the 2019 Hangzhou International Human Resources Exchanges and Cooperation Conference (Hangzhou, November 9-11). He also visited the East China Normal University (ECNU) Shanghai (November 12-15) and Jinan University at Guangzhou (November 18-19).
- Jean-Jacques Lévy gave a talk about the Four Ages of Computer Science at the Huashang College in Guangzhou (November 18).

9.3.4. Internal action

Jean-Jacques Lévy talked about "L'informatique en 4 temps" at the Café des Sciences at Inria Rocquencourt (February 12) and to the Journées Européennes du Patrimoine at Inria-Rocquencourt (21 September).

POLSYS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

D. Wang was General co-chair of the 44th International Symposium on Symbolic and Algebraic Computation (ISSAC 2019) , Beijing, China, July 15-18, 2019).

9.1.1.2. Member of the Organizing Committees

J. Berthomieu was Poster chair of the 44th International Symposium on Symbolic and Algebraic Computation (ISSAC 2019), Beijing, China, July 15-18, 2019).

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

E. Prouff was member of the program committees of the following conferences:

- Smart Card Research and Advanced Application Conference (CARDIS) 2019
- IACR Transactions on Cryptographic Hardware and Embedded Systems (TCHES) 2019

D. Wang was member of the program committee of the International Symposium on Wen-Tsun Wu's Academic Thought and Mathematics Mechanization (Wu 2019) (Beijing, China, May 12-17, 2019). He was member of the scientific committee of the 4th International Conference on Numerical and Symbolic Computation (SYMCOMP 2019) (Porto, Portugal, April 11-12, 2019).

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

E. Prouff is member of the editorial board of Journal of Cryptographic Engineering.

M. Safey El Din is member of the editorial board of Journal of Symbolic Computation.

D. Wang is Editor-In-Chief of Mathematics in Computer Science (published by Birkhäuser- Springer, Basel) and member of the Advisory Board for the journal • SCIENCE CHINA Information Sciences (published by Science China Press, Beijing and Springer, Berlin).

D. Wang is member of the Editorial Boards for the Journal of Symbolic Computation (published by Academic Press/Elsevier, London), SN Computer Science (published by Springer Nature, Switzerland) , Texts and Monographs in Symbolic Computation (published by Springer, Wien New York).

D. Wang is member of the International Advisory Board for Communications of JSSAC (Japan Society for Symbolic and Algebraic Computation) (published by JSSAC).

9.1.4. Invited Talks

E. Prouff was invited speaker at Spring School on Hardware Security (UK), the NIST Threshold Cryptography Workshop (USA), the Summer School on Real World Crypto and Privacy and the conference on Boolean Functions and Applications (BFA).

M. Safey El Din was invited speaker at the Arctic Applied Algebra conference (Norway), the workshop on Geometry of Real Polynomials, Convexity and Optimization at BIRS Banff International Research Station (Canada), the and the Conference in memory of Wen-tsun Wu's centennial birthday (China).

9.1.5. Scientific Expertise

M. Safey El Din was expert for the Czech Republic funding agency.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Jérémy Berthomieu had the following teaching activities:

Master : Polynomial System Solving, 13 hours, M2, Sorbonne Université & Polytech' Sorbonne, France.

Master : Computation Modeling, 42 hours, M1, Sorbonne Université, France.

Master : In charge of Basics of Algebraic Algorithms, 50 hours, M1, Sorbonne Université & Polytech' Sorbonne, France.

Master : Projects supervision, 7 hours, M1, Sorbonne Université, France.

Licence : Introduction to Cryptology, 15,75 hours, L3, Sorbonne Université , France.

Licence : Introduction to Numerical Algorithmic, 4,75 hours, L3, Sorbonne Université , France.

Licence : Introduction to Shell, 38,75 hours, L2, Sorbonne Université , France.

Licence : Projects supervision, 10 hours, L2, Sorbonne Université, France.

Jean-Charles Faugère had the following teaching activities:

Master : Polynomial Systems solving, 12 hours, M2, MPRI, France.

Ludovic Perret had the following teaching activities:

Master : Polynomial Systems solving, 12 hours, M2, MPRI, France.

Mohab Safey El Din has the following teaching activities:

Master : Polynomial System Solving, 40 hours, M1, Sorbonne Université & Polytech' Sorbonne, France.

Master : In charge of the curriculum on Security, Reliability of Performance in Computing, 30 hours, M1, Sorbonne Université , France.

Master : Projects management, 20 hours, M1, Sorbonne Université, France.

Licence : Projects supervision, 10 hours, L2, Sorbonne Université, France.

9.2.2. Supervision

PhD : Matías Bender, Algorithms for sparse polynomial systems: Grbner basis and resultants, June 2019, Jean-Charles Faugère and Elias Tsigaridas.

PhD in progress : Thi Xuan Vu, Faster algorithms for structured polynomial systems, started in Oct. 2017, Jean-Charles Faugère and Mohab Safey El Din.

PhD in progress : Phuoc Le, Real root classification and polar varieties, started in Oct. 2018, Jean-Charles Faugère and Mohab Safey El Din.

PhD in progress : Olive Chakraborty, Conception and cryptanalysis in secure quantic cryptography, started in May 2017, Jean-Charles Faugère and Ludovic Perret.

9.2.2.1. Juries

E. Prouff was member of the PhD committes of:

- Nicolas Belleville, Université Grenoble Alpes, 21-11-2019, "Compilation pour l'application de contre-mesures contre les attaques par canal auxiliaire"
- Joey Green, Université de Bristol, 20-10-2019, "A Study of Inference-Based Attacks with Neural Networks"
- Aberrahman DAIF, Université Paris 8, 03-05-2019, "Les codes correcteurs au service de la cryptographie symétrique et asymétrique"

J.C. Faugère was member of the PhD committes of:

- Robin Larrieu, École Polytechnique, dec. 2019, "Arithmetique rapide pour des corps finis"

<div align="center">**PRIVATICS Project-Team**</div>

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. General Chair, Scientific Chair

Antoine Boutet: Workshop on data transparency, 10/10/2018, Lyon, France.

Claude Castelluccia: *AI & Information Disorder* as part of the Global Forum on AI for Humanity forum, October 2019, Paris, France.

8.1.1.2. Member of the Organizing Committees

Antoine Boutet: Workshop on data transparency, 10/10/2019, Lyon, France.

Antoine Boutet: Winter School on Distributed Systems and Networks 2019, 4-8/02/2019, Sept Laux, France.

Antoine Boutet: SRDS 2019, 01-04/10/19 Lyon, France.

Daniel Le Métayer: Panel *Influence or manipulation? What protections in the digital world?*, CPDP 2019, 30/01/2019, Brussels, Belgium.

Claude Castelluccia, *Building trust in AI, building trust with AI*, Global Science Week, 01/06/2019, Grenoble, France.

8.1.2. Scientific Events Selection

8.1.2.1. Member of the Conference Program Committees

Antoine Boutet: Social Network Analysis and Mining 2019, Nature 2019, MDPI 2019, IEEE Transactions on Services Computing 2019, APVP 2019, Compas 2019, Location Privacy Workshop 2019.

Mathieu Cunche: ACM WiSec 2019, APVP 2019, AlgoTel 2019, IEEE WCNC 2019.

Claude Castelluccia: APF 2019.

Cédric Lauradoux: ACM CCSW 2019, Prix Gilles Kahn.

Daniel Le Métayer: XAI 2019, IWPE 2019, CPDP 2019, APF 2019.

Vincent Roca: SPACOMM 2019.

8.1.3. Invited Talks

Claude Castelluccia, *A Risk Analysis Framework for Facial Recognition Applications*, MIAI chair on AI&Ethics (T. Menissier), 04/12/2019, Grenoble, France.

Claude Castelluccia, *Cognitive security*, closing the regulatory gap for consumer neurotechnology" workshop, Brocher Fondation, 25-27/11/2019, Geneva, Switzerland.

Claude Castelluccia, *Influence or manipulation ? What protections in the digital world? (panel)*, CPDP 2019, 30/01/2019, Brussels, Belgium.

Cédric Lauradoux, *Subject Access Request and Proof of Ownership*, SoSySec Seminar, 25/10/2019, Rennes, France.

Cédric Lauradoux, *Influence or manipulation ? What protections in the digital world? (panel)*, CPDP 2019, 30/01/2019, Brussels, Belgium.

Cédric Lauradoux, *Y-aura-t-il un Cambridge Analytica de nos data santé ? (panel)*, FUTUR.E.S, 13/06/2019, Paris, France.

Cédric Lauradoux, *Pseudonymisation*, École de Cybersécurité de l'Université de Nice, 09/07/2019, Nice, France.

Cédric Lauradoux, *Subject Access Right*, Laboratoire d'Innovation Numérique de la CNIL, 12/07/2019, Paris, France.

Cédric Lauradoux, *Subject Access Request and Proof of Ownership*, CyberAlps Workshop on GDPR, 09/10/2019, Grenoble, France.

Daniel Le Métayer, *Inaugural session: How to promote a responsable design and usage of decision making systems ?* , Center for Internet and Society, 27/09/2019, Paris, France.

Daniel Le Métayer and Clément Hénin *Social Responsability of Algorithms*, SRA 2019, 12/12/2019, Paris, France.

Daniel Le Métayer, *HumanAI*, workshop on transparency and accountability for algorithmic decision systems, 11/09/2019, Montreal, Canada.

Mathieu Cunche, *Mécanismes anti-traçage dans les réseaux sans-fil*, journées nationales du GDR sécurité 2019, 12/06/19, Paris, France.

Vincent Roca, *Vers un habitat intelligent... mais fortement indiscret : la maison connectée sous l'angle de la vie privée*, Séminaire "Vie privée, mobile et sécurité", Festival des Libertés Numériques, 06/02/2019, Rennes, France.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master : Antoine Boutet, *Security and Privacy*, 14h, INSA-Lyon, France.

Master : Antoine Boutet, *Security and Privacy 16h*, Polytech Annecy, France.

Undergraduate course: Antoine Boutet, *System and Network*, 160h, L3, INSA-Lyon, France.

Master: Antoine Boutet, *Network, 24h*, Polytech Annecy, France.

Undergraduate course : Mathieu Cunche, *Introduction to computer science*, 120h, L1, INSA-Lyon, France.

Master : Mathieu Cunche, *Wireless Security*, 6h, M2, INSA-Lyon, France.

Undergraduate course : Mathieu Cunche, *On Wireless Network Security*, 10h, L1, IUT-2 (UPMF - Grenoble University) , France.

Undergraduate course : Mathieu Cunche, *Security & Privacy*, 21h, L3, INSA-Lyon, France.

Master : Mathieu Cunche, *Privacy and Data protection*, 14h, M2, INSA-Lyon, France.

Master : Mathieu Cunche, *Cryptography and Communication Security*, 18h, M1, INSA-Lyon, France.

Master : Cédric Lauradoux, *Advanced Topics in Security*, 20h, M2, Ensimag/INPG, France.

Master : Cédric Lauradoux, *Systems and Network Security*, 30h, M1, Ensimag, France.

Master : Cédric Lauradoux, *Internet Security*, 12h, M2, University of Grenoble Alpes, France.

Master : Cédric Lauradoux, *Cyber Security*, 3h, M2, Laws School of University of Grenoble Alpes, France.

Master : Claude Castelluccia, *Advanced Topics in Security*, 15h, M2, Ensimag/INPG, France.

Master : Claude Castelluccia, *Cyber Security*, 6h, M2, Laws School of University of Grenoble Alpes, France.

Master : Claude Castelluccia, *Data Privacy*, 6h, M2, Laws School of University of Grenoble Alpes, France.

Master : Daniel Le Métayer, *Privacy*, 12h, M2 MASH, Université Paris Dauphine, France.

Master : Daniel Le Métayer, *Privacy*, 12h, M2, Insa Lyon, France.

Master : Vincent Roca, *On Wireless Communications*, 12h, M1, Polytech' Grenoble, France.

Undergraduate course : Vincent Roca, *On Network Communications*, 44h, L1, IUT-2 (University of Grenoble Alpes), France.

Undergraduate course : Vincent Roca, *On Security and Privacy in smartphones*, 3h, L-Pro, University of Grenoble Alpes, France.

Undergraduate course : Vincent Roca, *C-Language Programming*, 24h, L-Pro, University of Grenoble Alpes, France.

Master : Vincent Roca, *On Security and Privacy in smartphones*, 3h, M2, France.

8.2.2. E-learning

MOOC "Protection de la vie privée dans le monde numérique:"

Nataliia Bielova, Cédric Lauradoux, Vincent Roca, Session 3, (open during 2 months), FUN-MOOC, Inria, public targeted: around 30000 for the three sessions since 2018, https://www.fun-mooc.fr/courses/course-v1:inria+41015+session03/about.

8.2.3. Supervision

- PhD in progress : Victor Morel, *IoT privacy*, September 2016, Daniel Le Métayer and Claude Castelluccia.
- PhD in progress : Mathieu Thiery, *IoT privacy* , April 2017, Vincent Roca with Arnaud Legout (DIANA Inria team).
- PhD in progress : Guillaume Celosia, *Wireless Privacy in the Internet of Things* , November 2017, Mathieu Cunche and Daniel Le Métayer.
- PhD in progress : Supryia Adhatarao, *Privacy of E-learning systems* , March 2018, Cédric Lauradoux.
- PhD in progress : Coline Boniface, *Cyberweapons: from bug bounties to zero days* , March 2018, Cédric Lauradoux.
- PhD in progress : Raoul Kerkouche, *Privacy-Preserving Processing of Medical Data* , January 2018, Claude Castelluccia.
- PhD in progress : Clement Henin, *Explainable AI* , September 2018, Claude Castelluccia et Daniel Le Métayer.
- PhD in progress: Théo Jourdan, *Privacy-preserving machine learning in medical domain, October 2018, Antoine Boutet.*
- *PhD in progress : Michale Toth,* Privacy protection of Web users and compliance with GDPR and ePrivacy Regulations *, December 2019, Natallia Bielova and Vincent Roca.*
- *Intern (M2): Michael Toth ,* Analyse et présentation accessible aux utilisateurs de Chartes de Vie Privée dans le contexte du RGPD, Vincent Roca.
- Intern (M2): Piyush Patil, *Privacy Leak Analysis in the Context of Smart Homes, Vincent Roca.*
- *Intern (M1): Jan Aalmoes - Understanding how location data influences personalized content in the mobile context, Antoine Boutet.*
- *Intern (M1): Vincent Prax - Privacy Analysis of Email Providers, Cédric Lauradoux.*
- *Intern (L3): Félix Fonteneau - Activity recognition using federated learning, Antoine Boutet.*
- *Intern (L3): Hilaire Bouaddi - Analysis of mobility traces, Antoine Boutet.*
- *Intern (L3): Amine Bahi - Privacy-preserving and scalable machine learning using homomorphic encryption, Antoine Boutet.*

8.2.4. Juries

HDR: Carole Frindel, *Approche computationnelle de l'imagerie médicale : application en neurosciences*, INSA Lyon, France, 13/12/2019, Claude Castelluccia.

PhD: Pieter Robyns, *Explicit and Implicit Information Leakage in Wireless Communication*, 11/12/19, Hasselt University, Belgium, Mathieu Cunche (reviewer).

PhD: Timothy CLAEYS, *Security for the Internet of Things: A bottom-up approach to the secure and standardized Internet of Things*, 19/12/19, Université de Grenoble Alpes, France, Mathieu Cunche (examiner).

PhD: Antoine Vastel, *Tracking versus security: investigating the two facets of browser fingerprinting*, Université de Lille, France, 23/10/2019, Daniel Le Métayer.

PhD: Julien Loudet, *Distributed and privacy-preserving personal queries on personal clouds*, Universitée Paris-Saclay, thèse préparée à Université de Versailles Saint-Quentin-en-Yvelines, 24/10/2019, France, Vincent Roca (reviewer).

8.3. Popularization

8.3.1. Hearings

- Claude Castelluccia: *audition at the Council of Europe on AI & Human Rights*, European Parliament, 05/2019, Paris, France.

8.3.2. Internal or external Inria responsibilities

- Claude Castelluccia is co-leader of the Worpackage 5 (data governance and privacy) of the Grenoble Data Institute.
- Claude Castelluccia is co-leader of Grenoble CyberAlps (cybersecurity institute of Grenoble).
- Claude Castelluccia is a member of the Grenoble AI institute (MIAI)
- Daniel Le Métayer is a member of the European Commission Multistakeholder expert group to support the application of General Data Protection Regulation (GDPR).
- Daniel Le Métayer is Chair of the CNIL-Inria privacy award.
- Daniel Le Métayer is a member of the steering committee of APVP (Atelier Protection de la Vie Privée).
- Daniel Le Métayer is a member of the steering committee of the chair « Transformation de l'action publique » of Sciences Po Lyon.
- Antoine Boutet is the communication manager of CITI laboratory.
- Antoine Boutet is the manager the Cybersecurity and privacy option of the 5th year of computer science at INSA-Lyon.
- Cédric Lauradoux is a representative of Inria ethical committee COERLE at Inria Grenoble Rhone-Alpes.
- Cédric Lauradoux is a member of the scientific committee of the research action "Cyber-Physical System" of Labex Persyval (Grenoble).
- Cédric Lauradoux is a member of the ethics committee of ComUE Université Grenoble Alpes.
- Cédric Lauradoux is a member of Inria Grenoble Rhône-Alpes committee for technological development.
- Vincent Roca is the PRIVATICS Team Leader (since Nov. 2020).
- Vincent Roca is the co-chair of the NWCRG ("Coding for Efficient Network Communications" Research Group), Internet Research Task Force (IRTF) / IETF.
- Vincent Roca is the ANR 2017 DAPCODS/IOTics project leader.
- Vincent Roca is the chair of the CUMI ("Commision des Utilisateurs des Moyens Informatiques") of Inria Grenoble Rhone-Alpes.

- Vincent Roca is a member of Inria ethical committee COERLE.
- Vincent Roca is co-editor (with Ludovic Mé and Steve Kremer) of a series of articles dedicated to cybersecurity on the Blog Binaire, Le Monde.

8.3.3. Articles and contents

- Antoine Boutet et Mathieu Cunche: *Souriez, vous êtes géolocalisés !*, "Tout compte fait", 06/05/2019
- Antoine Boutet: *L'algorithme : cette formule arbitraire, miroir de l'intention humaine*, En Vue (INSA Lyon newsletter), 18/12/2019 .
- Claude Castelluccia: *Manipulation informationnelle et psychologique*, Le blog binaire du Monde, 05/2018.
- Mathieu Cunche: *Des chercheurs français découvrent des fuites d'informations sensibles sur les appareils Apple*, Science et Avenir.fr, 16/12/2019.
- Mathieu Cunche, *Vers une reconnaissance faciale généralisée*, Techniques de l'ingénieur, 05/12/2019.
- Cédric Lauradoux, *Bientot un identifiant numérique pour tous*, Les Echos, 07/05/2019.
- Cédric Lauradoux, *Facebook, mon fil d'actu, ma bataille*, Mediapart, 05/12/2019.
- Daniel Le Métayer and Claude Castelluccia: *Algorithmic decision making : risks and opportunities for society*, Inria Interview, 25/06/2019.
- Daniel Le Métayer: *Interview about algorithmic decision systems.*, Atlantico, 21/09/2019.
- Vincent Roca and Cédric Lauradoux: *Prêts à tout pour protéger leurs données*, 01NET, 02/10/2019.
- Vincent Roca: *Suite au Livre Blanc Inria sur la cybersécurité : L'ordinateur quantique est une menace pour une partie des techniques de chiffrement actuellement utilisée*, L'Hebdo, BFM Business, 09/02/2019.
- Vincent Roca: *Les objets connecte ́s nous espionnent-ils ?*, "Les Idées Claires", France Culture, 12/03/2019.
- Vincent Roca: *Rencontre Sciences et Politique : Cybersécurité*, Acade ́mie des sciences - Acade ́mie nationale de me ́decine - Office parlementaire d'e ́valuation des choix scientifiques et technologiques (OPECST), Sénat, 19/06/2019.
- Vincent Roca: *Objets connectés et vie privée*, Les Echos, 20/03/2019.
- Vincent Roca: *Nouvelles technologies : tous espionnés*, Journal de 20 Heures, France 2, 12/04/2019.
- Vincent Roca: *Vie privée et maison intelligente*, Café des Sciences, 14/05/2019, Grenoble, France.

8.3.4. Education

- Nataliia Bielova: *Animation du forum du MOOC Protection de la vie privée dans le monde numérique*, May-June 2019.
- Antoine Boutet: Contest of data anonymization between three different groups of INSA students (from Lyon and Bourges), 25-26/11/19.
- Cédric Lauradoux: *Action vie privée*, Maison pour la science, 14/02/2019, Grenoble, France.
- Cédric Lauradoux: *Protéger sa vie privée*, DIU EIL (enseignant d'informatique au lycée), 12/04/2019, Grenoble, France.
- Cédric Lauradoux: *Animation du forum du MOOC Protection de la vie privée dans le monde numérique*, May-June 2019.
- Vincent Roca: : *Animation du forum du MOOC Protection de la vie privée dans le monde numérique*, May-June 2019.

8.3.5. Interventions

- Mathieu Cunche: *Cybersécurité: Protéger ses objets physiques*, Pint of science, 22/05/2019, Lyon, France.
- Cédric Lauradoux: *Procès du robot 42*, Festival TRANSFO, 24/01/2019, Grenoble, France.
- Cédric Lauradoux: *Challenges de cryptologie*, Printemps du numérique, 08/04/19, Die, France.
- Cédric Lauradoux: *Challenges de cryptologie*, MathC2+ internship, 25/06/19, Grenoble, France.
- Cédric Lauradoux: *Atelier cryptographie*, Fête de la Science, 10/10/2019, Grenoble, France.
- Cédric Lauradoux: *Procès du robot 42*, Fête de la Science, 12/10/2019, Grenoble, France.
- Cédric Lauradoux: *Les données en question*, Festival Imaginascience, 16/10/2019, Annecy, France.
- Cédric Lauradoux: *Le Numérique nous menace-t-il ?*, Telecom Saint Etienne, 03/12/2019, Saint Etienne, France.
- Cédric Lauradoux: *Vie privée et Liberté dans le monde numérique*, Collège Les Dauphins, 03/12/2019, Saint Jean de Soudain, France.
- Cédric Lauradoux: *Challenges de cryptologie*, Cité scolaire Jean PREVOST, 12/12/2019, Villard de Lans, France.
- Cédric Lauradoux: *Avoir un usage Internet éclairé*, UIAD, 18/12/2019, Grenoble, France.
- Vincent Roca: *Maison intelligente : le point de vue du respect de la vie privée*, Café des Sciences, 14/05/2019, Grenoble, France.
- Vincent Roca: *Habitat intelligent, service de vélo partagé et vie privée*, Fête de la Science, 12/10/2019, Grenoble, France.

8.3.6. Internal action

- Cédric Lauradoux: *Formation Éthique*, Inria Paris, 26/01/2019, Paris, France.
- Cédric Lauradoux: *Formation Éthique*, Inria Saclay, 25/04/2019, Saclay, France.
- Cédric Lauradoux: *Formation Éthique*, Inria Grenoble - Rhône-Alpes, 13/05/2019, Lyon, France.
- Cédric Lauradoux: *Rules of Cyber Engagement*, Inria JSI, 07/06/2019, Lyon, France.
- Cédric Lauradoux: *Privacy: Understanding the GDPR*, Inria Grenoble - Rhône-Alpes, 15/10/2019, Grenoble, France.
- Vincent Roca: *Sécurité numérique : technique, éthique, juridique : qui s'y frotte s'y pique (moderator)*, Inria JSI, 07/06/2019, Lyon, France.

<p align="center" style="color:red">PROSECCO Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Catalin Hritcu is the Steering Committee Chair of the Workshop on Principles of Secure Compilation (PriSC)
- Catalin Hritcu is the main organizer a Dagstuhl Seminar on Secure Compilation (20201)
- Karthikeyan Bhargavan co-chaired the Workshop on Secure Messaging at EUROCRYPT 2019

10.1.1.2. Member of the Organizing Committees

- Catalin Hritcu is a Steering Committee Member of the 9th ACM SIGPLAN International Conference on Certified Programs and Proofs (CPP)

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Catalin Hritcu served as Program Chair of the 9th ACM SIGPLAN International Conference on Certified Programs and Proofs (CPP)

10.1.2.2. Member of the Conference Program Committees

- Karthikeyan Bhargavan was PC member of CCS 2019
- Bruno Blanchet was PC member of CSF 2019
- Catalin Hritcu was PC member of RV 2019, SecDev 2019, CSF 2020

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Associate Editor

- – of the *International Journal of Applied Cryptography (IJACT)* – Inderscience Publishers: Bruno Blanchet

10.1.4. Invited Talks

- Karthikeyan Bhargavan gave invited talks at ERCIM Rome, FSTTCS Mumbai, ICISS Hyderabad,
- Catalin Hritcu gave invited talks at EPFL Lausanne, Ruhr University Bochum, MPI-SWS, and Chalmers University;

10.1.5. Leadership within the Scientific Community

- Catalin Hritcu served as the Artifact Evaluation Co-Chair for POPL 2018 and POPL 2019

10.1.6. Scientific Expertise

- Bruno Blanchet is a member of the specialized temporary scientific committee of ANSM (*Agence nationale de sécurité du médicament et des produits de santé*), on the cybersecurity of software medical devices.
- Bruno Blanchet was a scientific consultant for Nomadic Labs, regarding the development of the blockchain Tezos.
- Karthikeyan Bhargavan was scientific consultant for Nomadic Labs, regarding verified cryptographic software.

10.1.7. Research Administration

- Bruno Blanchet was a member of the hiring scientific jury for Inria researchers (*chargé de recherche*) of the Inria Paris center.
- Bruno Blanchet was a representative of Inria Paris at the DIM RFSI (*Domaine d'Intérêt Majeur, Réseau Francilien en Sciences Informatiques*).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: Bruno Blanchet, Cryptographic protocols: formal and computational proofs, 18h equivalent TD, master M2 MPRI, université Paris VII
- Master: Karthikeyan Bhargavan, Cryptographic protocols: formal and computational proofs, 18h equivalent TD, master M2 MPRI, université Paris VII
- PhD: Karthikeyan Bhargavan, Verified Crypto for Verified Protocols, Sibenik Summer School on real-world crypto and privacy, 17-21 June, 2019
- PhD: Catalin Hritcu, Program Verification with F* course at Summer School on Verification Technology, Systems, and Applications, VSTA 2019, 1-5 July 2019 at University of Luxembourg
- PhD: Catalin Hritcu, Writing and Verifying Functional Programs in Coq course at Summer School on Cryptography, Blockchain, and Program Verification, Mathinfoly 2019, 24-31 August 2019 at INSA, Lyon

10.2.2. Supervision

- PhD in progress: Benjamin Lipp, On Mechanised Cryptographic Proofs of Protocols and their Link with Verified Implementations, ENS Paris, since October 2018, supervised by Bruno Blanchet and Karthikeyan Bhargavan.
- PhD in progress: Benjamin Beurdouche, Formal Verification for Real-World Cryptographic Protocols, PSL, since September 2016, supervised by Karthikeyan Bhargavan.
- PhD in progress: Natalia Kulatova, Formal Analysis of Security Devices, PSL, since September 2017, supervised by Karthikeyan Bhargavan and Graham Steel.
- PhD in progress: Marina Polubelova, Formal Verification of a Cryptographic Library, PSL, since September 2017, supervised by Karthikeyan Bhargavan.
- PhD in progress: Denis Merigoux, Verification framework for performance-oriented memory-safe programming languages, since September 2018, supervised by Karthikeyan Bhargavan and Jonathan Protzenko.
- PhD: Kenji Maillard, on Principles of Program Verification for Arbitrary Monadic Effects, started January 2017, supervised by Catalin Hritcu
- PhD in progress: Carmine Abate, The Formal Foundations of Secure Compilation, since June 2018, advised by Catalin Hritcu
- PhD in progress: Jérémy Thibault, Secure Compartmentalizing Compilation to a Tagged Architecture, from August 2018, advised by Catalin Hritcu
- PhD in progress: Guido Martínez (CIFASIS-CONICET Rosario), Metatheory for Semi-Automatic Verification of Effectful Programs, from April 2017, advised by Mauro Jaskelioff (CIFASIS-CONICET Rosario) and Catalin Hritcu

10.2.3. Juries

- Bruno Blanchet was member of the PhD jury of Adrien Koutsos (ENS Paris-Saclay).
- Karthikeyan Bhargavan was member of the PhD jury of Joseph Lallemand (Univ. Lorraine) and Guido Martinez (Univ Stuttgart).

- Catalin Hritcu was a discussion leader for the Licentiate defense of Maximilian Algehed (Chalmers University);

10.3. Popularization

10.3.1. Articles and contents

- Catalin Hritcu contributed an article on Secure Compilation to the SIGPLAN PL Perspectives blog
- Karthikeyan Bhargavan published a paper in Communications of the ACM

<p align="center" style="color:red">SECRET Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- FSE 2020, March 2020, Athens, Greece: C. Boura, general chair ; G. Leurent, program co-chair

- PQCrypto 2020, April 15 - April 17, 2020, Paris, France: N. Sendrier, general co-chair ; J.P. Tillich, program co-chair

- Dagstuhl seminar on Quantum Cryptanalysis 2019, October 13-18, 2019, Dagstuhl, Germany: M. Naya-Plasencia co-organizer.

9.1.1.2. Member of the Organizing Committees

- FSE 2019: March 25-28, 2019, Paris, France: Gaëtan Leurent.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Co-editor-in-chief of *IACR Transactions on Symmetric Cryptology* starting from 2019: Gaëtan Leurent.

- Co-chair of the Program Committee of *Eurocrypt 2020*, Zagreb, Croatia, May 2020: Anne Canteaut

- Co-chair of the Program Committee of *FSE 2020*, Athens, Greece, March 2020: Gaëtan Leurent.

- Co-chair of the Program Committee of *WCC 2019*, March-April 2019, St Jacut-de-la-Mer, France: A. Canteaut

- Chair of the Program Committee of *QCrypt 2019*, August 26-30 2019, Montreal, Canada: A. Leverrier

9.1.2.2. Member of the Conference Program Committees

- CT-RSA 2019: March 4-8, 2019, San Francisco, USA (L. Perrin);

- FSE 2019: March 25-28, 2019, Paris, France (C. Boura, A. Canteaut, G. Leurent, M. Naya-Plasencia)

- WCC 2019: March 31 - April 5, 2019, St Jacut-de-la-Mer, France, (A. Canteaut chair, P. Charpin, N. Sendrier, J.P. Tillich);

- PQCrypto 2019: May 8-10, 2019, Chongqing, China, (M. Naya-Plasencia, N. Sendrier, J.P. Tillich);

- CBC 2019: May 18-19, 2019, Darmstadt, Germany, (J.-P. Tillich);

- TQC 2019: June 3-9, 2019, University of Maryland, USA, (A. Chailloux);

- ISIT 2019: July 7-12, 2019, Paris, France, (A. Leverrier, J.-P. Tillich);

- CHES 2019: August 25-28, 2019, Atlanta, USA, (G. Leurent);

- PQC: Perspectives on Quantum Computing, NISQ and beyond: November 20, 2019, Paris, France (A. Leverrier);

- SPACE 2019: December 3-7, 2019, Gandhinagar, India (L. Perrin);

- FSE 2020: March 22-26, 2020, Athens, Greece, (C. Boura, A. Canteaut, G. Leurent co-chair, L. Perrin)

- PQCrypto 2020: April 15-17, 2020, Paris, France (A. Chailloux, M. Naya-Plasencia, N. Sendrier, J.P. Tillich);

- CBCrypto 2020: May 9-10, 2020, Zagreb, Croatia, (J.-P. Tillich);
- Eurocrypt 2020: May 10-14, 2020, Zagreb, Croatia, (A. Canteaut co-chair, M. Naya-Plasencia);
- ISIT 2020: June 21-26, 2020, Los Angeles, USA, (J.-P. Tillich).

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- *Advances in Mathematics of Communications*, associate editors: N. Sendrier and J.P. Tillich
- *Applicable Algebra in Engineering, Communication and Computing*, associate editor: A. Canteaut.
- *Designs, Codes and Cryptography*, associate editor: P. Charpin.
- *Finite Fields and Applications*, associate editors: A. Canteaut, P. Charpin.
- *IACR Transactions on Symmetric Cryptology*, associate editors: C. Boura, A. Canteaut, G. Leurent (co-editor in chief), M. Naya-Plasencia, L. Perrin.
- *IACR Transactions on Cryptographic Hardware and Embedded Systems*, associate editor: G. Leurent.
- *Quantum (the open journal for quantum science)*, associate editor: A. Leverrier.
- *IEEE Transactions on Information Theory*, associate editor: A. Canteaut.

9.1.4. Invited Talks

- P. Charpin, *Crooked and weakly crooked functions*, Finite Fields and Applications - Fq14, Vancouver, Canada, June 3-7, 2019.
- M. Naya-Plasencia, *Preparing Symmetric Cryptography for the Quantum World*, FSE 2019, Paris, France, 24-28 March, 2019.

9.1.5. Leadership within the Scientific Community

- A. Canteaut serves as a chair of the steering committee of *Fast Software Encryption (FSE)*, M. Naya-Plasencia and G. Leurent also serve on the committee.
- N. Sendrier serves on the steering committee of *Post-quantum cryptography (PQCrypto)*.
- P. Charpin, N. Sendrier and JP Tillich serve on the steering committee of the WCC conference series.

9.1.6. Research Administration

- A. Canteaut served as Head of Science of the Inria Paris research center until August 2019.
- A. Canteaut serves as Head of *Inria Evaluation Committee* since September 2019.
- P. Charpin serves on the *Comité Parité* at Inria.
- G. Leurent and M. Naya-Plasencia are members of *Inria Paris CSD Committee* (Comité de suivi doctoral).
- M. Naya-Plasencia serves on the *Inria Evaluation Committee* since September 2019.
- A. Leverrier serves on the steering committee of the Domaine D'Intérêt Majeur SIRTEQ (Quantum Technologies in IdF).

9.1.7. Committees for the selection of professors, assistant professors and researchers

- 2019 Jury Inria Research Positions (ARP/SRP) (M. Naya-Plasencia);
- 2019 Jury d'admission Inria DR2, (M. Naya-Plasencia);
- 2019 Jury d'admissibilité Inria DR2, (A. Canteaut);
- 2019 Jury d'admissibilité Inria CRCN national (A. Canteaut);
- Committee for the nomination to a permanent position, Radboud University Nijmegen, Netherlands (M. Naya-Plasencia).
- Committee for a professorship in cryptography, TU Graz, Austria (A. Canteaut)

- Reviewer for a promotion to professorhip, ISI Kolkata, India (A. Canteaut)
- Committee for 3 assistant professor positions in computer science at Université de Paris: A. Leverrier

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: A. Canteaut, *Error-correcting codes and applications to cryptology*, 12 hours, M2, University Paris-Diderot (MPRI), France;

Master: A. Chailloux, *Quantum information*, 12 hours, M2, University Paris-Diderot (MPRI), France;

Master: A. Chailloux, *Quantum algorithms*, 4 hours, M2, Ecole Normale Supérieure de Lyon, France;

Master: A. Leverrier, *Quantum information and quantum cryptography*, 12 hours, M2, University Paris-Diderot (MPRI), France;

Master: L. Perrin, *Application Web et Sécurité*, 24 hours, M1, UVSQ, France;

Bachelor: L. Perrin, *Cryptographie*, 29 hours, L3, UVSQ, France;

Master: J.-P. Tillich, *Introduction to Information Theory*, 36 hours, M2, Ecole Polytechnique, France;

Master: J.-P. Tillich, *Quantum Information and Applications*, 36 hours, M2, Ecole Polytechnique, France.

The members of the project-team were also invited to give courses at training schools for PhD students and young researchers:

- N. Sendrier, *Code-Based Cryptography*, PQCrypto 2019 Summer School, Chongqing, China, May 6, 2019.

9.2.2. Supervision

PhD: Xavier Bonnetain, *Cryptanalysis of symmetric primitives in the post-quantum world*, Sorbonne Université, November 15, 2019, supervisor: M. Naya Plasencia.

PhD: Thomas Debris, *Quantum algorithms for decoding linear codes*, Sorbonne Université, December 17, 2019, supervisor: JP Tillich.

PhD: Antoine Grospellier, *LDPC codes: constructions and decoding*, Sorbonne Université, November 8, 2019, supervisors: A. Leverrier and O. Fawzi (ENS Lyon)

PhD: Vivien Londe, *Study of quantum LDPC codes*, University of Bordeaux, December 6, 2019, supervisors: G. Zémor (Univ. Bordeaux) and A. Leverrier

PhD in progress: Kevin Carrier, *Presque-collisions et applications au décodage générique et à la reconnaissance de codes correcteurs d'erreurs*, since October 2016, supervisor: N. Sendrier and JP Tillich.

PhD in progress: Matthieu Lequesne, *Attaques par canaux cachés sur les cryptosystèmes à base de codes MDPC quasi-cycliques*, since September 2017, supervisor: N. Sendrier

PhD in progress: André Schrottenloher, *Long-term security of symmetric primitives*, since February 2018 supervisor: M. Naya-Plasencia

PhD in progress: Ferdinand Sibleyras, *Security of modes of operation*, since October 2017, supervisor: G. Leurent and A. Canteaut

PhD in progress: Valentin Vasseur, *Etude du décodage des codes QC-MDPC*, since October 2017, supervisor: N. Sendrier

PhD in progress: Rémi Bricout, *Etude de scénarios non-locaux quantiques à l'aide d'outils de la théorie de l'information quantique*, since September 2017, supervisor: A. Chailloux and A. Leverrier

PhD in progress: Shouvik Ghorai, *Beyond-QKD continuous-variable quantum cryptographic protocols*, since October 2017, supervisors: E. Diamanti (UPMC), A. Leverrier

PhD in progress: Andrea Olivo, *Partir de contraintes relativistes pour faire de la cryptographie quantique*, since November 2017, supervisors: A. Chailloux and F. Grosshans (laboratoire Aimé Cotton).

PhD in progress: Daniel Coggia, *Cryptanalysis techniques for lightweight ciphers*, since September 2018, supervisors: A. Canteaut and C. Boura.

PhD in progress: Simona Etinski, *Quantum algorithms and protocols*, since October 2019, supervisors: A. Chailloux, A. Leverrier and F. Magniez (Université de Paris)

PhD in progress: A. Florez Gutierrez, *Secure Symmetric Primitives and the Post-Quantum World*, since September 2019, supervisor: M. Naya Plasencia

PhD in progress: Lucien Grouès, *Decoding algorithms for quantum LDPC codes*, since October 2019, supervisors: A. Leverrier, O. Fawzi

PhD in progress: Rocco Mora, *Algebraic structures in code-based cryptography*, since October 2019, supervisor: JP Tillich

9.2.3. Juries

- Lorenzo Grassi, *Cryptanalysis of AES-like ciphers and reviving old design ideas for new constructions*, TU Graz, Austria, April 26, 2019, committe: A. Canteaut (reviewer).

- Louiza Khati, *Full Disk Encryption and Beyond*, Université Paris PSL, July 15, 2019, committee: M. Naya-Plasencia (chair).

- T. van Himbeeck, *Quantum Cryptography with Partially Trusted Devices*, Université Libre de Bruxelles, October 18, 2019, committee: A. Leverrier

- A. Aloshious, *Higher dimensional topological codes : structural properties and decoders*, Indian Institute of Technology Madras, November, 2019, committee: J.-P. Tillich (reviewer).

- A. Grospellier, *Décodage des codes expanseurs quantiques et application au calcul quantique tolérant aux fautes*, Sorbonne University, November 8, 2019, committee: A. Leverrier (supervisor), J.-P. Tillich.

- Xavier Bonnetain, *Hidden structures and quantum cryptanalysis*, Sorbonne Université, November 15, 2019, committee: A. Chailloux, M. Naya-Plasencia (Supervisor).

- Loïc Ferreira, *Secure Tunnels for Constrained Environments*, Université Bretagme Loire, November 18, 2019, committee: M. Naya-Plasencia.

- O. Fawzi, HdR, *Contributions to quantum information theory*, École Normale Supérieure de Lyon, December 2, committee: J.-P. Tillich (reviewer).

- V. Londe, *Topological Quantum Error-Correcting Codes beyond dimension 2*, Bordeaux University, December 6, 2019, committee: A. Leverrier (supervisor), JP Tillich

- M. Bozzio, *Security and implementation of advanced quantum cryptography: Quantum money - Quantum weak coin flipping*, Université Paris-Saclay, December 10, 2019, committee: A. Leverrier (reviewer)

- Alain Couvreur, HdR, *Codes algébriques et géométriques, applications à la cryptographie et à l'information quantique*; Université Paris-Diderot, December 16, 2020, committee: N. Sendrier (reviewer), J.P. Tillich

- Patrick Lacharme, HdR, *Études en Securité Informatique*, Université de Normandie, February 6, 2020, committee: M. Naya-Plasencia (reviewer).

- Thomas Debris, *Cryptographie fondée sur les codes : nouvelles approches pour constructions et preuves ; contribution en cryptanalyse*; Sorbonne Université, December 17, 2019, committee: N. Sendrier, J.P. Tillich (supervisor)

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- **Association Animath**: M. Lequesne serves on the board of Animath.
- M. Lequesne is also member of the scientific committee of the French Tournament of Young Mathematicians: redaction of the problems for the competition, jury member (chair of a jury) ; member of the scientific committee of the International Tournament of Young Mathematicians: redaction of the problems for the competition, jury member (chair of a jury) ; Member of the scientific committee of the Correspondances des Jeunes Mathématicien.ne.s: redaction of the problems for the competition.

9.3.2. Articles and contents

- *La fragilité inattendue du chiffrement symétrique dans le monde post-quantique*, Gaëtan Leurent and Maria Naya-Plasencia, María, Interstices [63]

9.3.3. Education

- **Alkindi cipher challenge:** Several members of the project-team are involved in the cipher challenge for high-school students "concours Alkindi" http://www.concours-alkindi.fr/. Mathieu Lequesne serves as a co-organizer of the challenge, preparing the three rounds and the final. Together with C. Boura, he was also involved in the redaction of the exercises.
- Organization of the event "Rendez-vous des Jeunes Mathématiciennes et Informaticiennes" at Inria Paris (October 28-29) by M. Lequesne, a 2-day camp for 20 high-school girls interested in mathematics and computer science. C. Boura, A. Canteaut and L. Perrin gave talks at this event.
- **Project Algo'scape with a high school (Lycée Anna Judic, Semur en Auxois):** design of an escape game on cryptography (L. Perrin), visit of 15 students at Inria, May 2019 (A. Canteaut and L. Perrin).

<h1 style="color:red; text-align:center">SPADES Project-Team</h1>

9. Dissemination

9.1. Environmental and societal responsibility

NB: We support the idea of an additional section in future Activity Reports that would be dedicated to actions in connection with our environmental and societal responsibility. We write below content that would fit into it for 2019.

- A discussion on computer ethics was scheduled at our last team seminar. There have been several meetings between permanent researchers to discuss how we can better align our research agenda with the current needs of our society. Our discussions cover aspects such as the environmental and societal impact of ICT (Information and Communication Technologies), and more broadly the role that ICT play in our lives, our role as researchers in computer science, etc. These discussions have led us to consider these issues as a research topic that we should investigate in the near future.

- Sophie Quinton and Jean-Bernard Stefani contributed to the so-called "MakeSEnS" working group appointed by the CEO of Inria to propose a list of concrete actions that the institute could take to tackle the current environmental crisis [24].

- Sophie Quinton has been mandated by Patrick Gros (Director of the Inria Grenoble – Rhône-Alpes research center) to organize discussions and actions regarding the environmental and societal impact of our research at Inria Grenoble Rhône-Alpes.

- Sophie Quinton is a member of the GDS EcoInfo (https://ecoinfo.cnrs.fr/). Her actions as member of EcoInfo include: leading a discussion group on the environmental impact of collaborative platforms as part of a two-day seminar organized at Mines ParisTech [0]; and contributing to a roadmap regarding the environmental and societal impact of ICT prepared by the Conseil National du Numérique (https://cnnumerique.fr/) at the government's request.

- Sophie Quinton co-chairs a working group of the GDR CIS associated with the Center for Internet and Society (http://cis.cnrs.fr/) focused on environmental issues.

- Sophie Quinton is part of the scientific committee of the upcoming "COP2 étudiante" (https://cop2etudiante.org/).

9.2. Promoting Scientific Activities

9.2.1. Scientific Events: Organisation

9.2.1.1. General Chair, Scientific Chair

- Alain Girault is member of the steering committee of the International Federated Conference on Distributed Computing Techniques (DISCOTEC) and of the ACM International Conference on Embedded Software (EMSOFT).

- Gregor Gössler is member of the steering committee of the International Workshop on Causal Reasoning for Embedded and Safety-critical Systems Technologies (CREST).

- Jean-Bernard Stefani is the current chair of the steering committee of the IFIP FORTE international conference series, a member of the steering committee of the IFIP DISCOTEC conference series, and the current chair of the IFIP Working Group 6.1.

9.2.1.2. Member of the Organizing Committees

- Alain Girault was co-organizer of the Workshop on Synchronous Programming (SYNCHRON'19) http://synchron19.org.

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[0] http://www.mines-paristech.fr/Actualites/Ingenieurs-et-transitions-environnementales/4116

- Gregor Gössler was co-organizer of a Shonan seminar on *Causal reasoning in systems* https://project.inria.fr/shonan139.

9.2.2. Scientific Events: Selection

9.2.2.1. Chair of Conference Program Committees

- Sophie Quinton was the program chair of 31st Euromicro Conference on Real-Time Systems (ECRTS'19) https://www.ecrts.org/archives/fileadmin/WebsitesArchiv/ecrts2019/index.html.

9.2.2.2. Member of the Conference Program Committees

- Alain Girault served in the program committees of the Forum on specification and Design Languages (FDL'19) and the Conference on Applications of Concurrency to System Design (ACSD'19).
- Gregor Gössler served in the program committees of the ACM/IEEE International Conference on Embedded Software (EMSOFT'19), the 26th SPIN Symposium on Model Checking of Software (SPIN'19), the 17th ACM-IEEE International Conference on Formal Methods and Models for System Design (MEMOCODE'19), and the 4th international Workshop on Formal Reasoning about Causation, Responsibility, and Explanations in Science and Technology (CREST'19).

9.2.2.3. Reviewer

- Alain Girault reviewed an article for the International Conference on Fundamental Approaches to Software Engineering (FASE'19).
- Sophie Quinton reviewed an article for the ACM International Conference on Embedded Software (EMSOFT'19).
- Pascal Fradet reviewed an article for the ACM International Conference on Embedded Software (EMSOFT'19).

9.2.3. Journal

9.2.3.1. Member of the Editorial Boards

- Alain Girault is a member of the editorial board of the Journal on Embedded Systems.

9.2.3.2. Reviewer - Reviewing Activities

- Alain Girault reviewed articles for IEEE Transactions on Service Computing (TSC) and for the International Journal on Software Tools for Technology Transfer (STTT).
- Gregor Gössler reviewed an article for IEEE Transactions on Automatic Control (TAC).

9.2.4. Leadership within the Scientific Community

- Sophie Quinton is a member of the ACM SIGBED Executive Committee and Associate Editor of the SIGBED Review.

9.2.5. Research Administration

- Pascal Fradet is head of the committee for doctoral studies ("Responsable du comité des études doctorales") of the Inria Grenoble – Rhône-Alpes research center and local correspondent for the young researchers Inria mission ("Mission jeunes chercheurs").
- Alain Girault is Deputy Scientific Director at Inria in charge of the domain "Algorithmics, Programming, Software and Architecture". He is also Scientific Manager of the Cyber-Physical Systems axis of the Persyval-Lab labex https://persyval-lab.org.
- Xavier Nicollin is member of the committee for computing resources users ("Comité des Utilisateurs des Moyens Informatiques") of the Inria Grenoble – Rhône-Alpes research center.
- Jean-Bernard Stefani is Head of Science (délégué scientifique) of the Inria Grenoble – Rhône-Alpes research center and a member of the Inria Evaluation Committee.

9.3. Teaching - Supervision - Juries

9.3.1. Teaching

Licence : Pascal Fradet, Théorie des Langages 1 & 2, 36 HeqTD, niveau L3, Grenoble INP (Ensimag), France

Licence : Pascal Fradet, Modèles de Calcul : λ-calcul, 12 HeqTD, niveau L3, Univ. Grenoble Alpes, France

Master : Pascal Fradet, Langages et Traducteurs, 16 HeqTD, niveau M1, Polytech Grenoble, Univ. Grenoble Alpes, France

Master : Xavier Nicollin, Analyse de Code pour la Sûreté et la Sécurité, 45 HeqTD, niveau M1, Grenoble INP (Ensimag), France

Licence : Xavier Nicollin, Théorie des Langages 1, 48 HeqTD, niveau L3. Grenoble INP (Ensimag), France

Licence : Xavier Nicollin, Théorie des Langages 2, 37,5 HeqTD, niveau L3, Grenoble INP (Ensimag), France

Licence : Xavier Nicollin, Bases de la Programmation Impérative, 30 HeqTD, niveau L3, Grenoble INP (Ensimag), France

Licence : Sophie Quinton, Théorie des Langages 2, 20 HeqTD, niveau L3, Grenoble INP (Ensimag), France

Master : Sophie Quinton, Performance and Quantitative Properties, 8 HeqTD, MOSIG, Univ. Grenoble Alpes, France

Master: Jean-Bernard Stefani, Formal Aspects of Component Software, 9h, MOSIG, Univ. Grenoble Alpes, France.

9.3.2. Supervision

- PhD in progress: Sihem Cherrared, "Fault Management in Multi-Tenant Programmable Networks"; Univ. Rennes 1; since October 2016; co-advised by Eric Fabre and Gregor Gössler.

- PhD in progress: Thomas Mari, "Construction of Safe Explainable Cyber-physical systems"; Grenoble INP; since October 2019; co-advised by Gregor Gössler and Thao Dang.

- PhD: Christophe Prévot, "Early Performance assessment for evolving and variable Cyber-Physical Systems", Univ. Grenoble Alpes; defended on November 15th, 2019; co-advised by Alain Girault and Sophie Quinton.

- PhD: Zain A. H. Hammadeh, "Deadline Miss Models for Temporarily Overloaded Systems", TU Braunschweig; defended on May 28th, 2019; co-advised by Rolf Ernst and Sophie Quinton.

- PhD in progress: Stephan Plassart, "On-line optimization in dynamic real-time systems"; Univ. Grenoble Alpes; since September 2016; co-advised by Bruno Gaujal and Alain Girault.

- PhD in progress: Xiaojie Guo, "Formal Proofs for the Analysis of Real-Time Systems in COQ"; Univ. Grenoble Alpes; since December 2016; co-advised by Pascal Fradet, Jean-François Monin, and Sophie Quinton.

- PhD in progress: Maxime Lesourd, "Generic Proofs for the Analysis of Real-Time Systems in COQ"; Univ. Grenoble Alpes; since September 2017; co-advised by Pascal Fradet, Jean-François Monin, and Sophie Quinton.

- PhD in progress: Arash Shafiei, "RDF: A reconfigurable dataflow MoC supporting dynamic topological transformations and static analyzability"; Univ. Grenoble Alpes; since September 2017; co-advised by Pascal Fradet, Alain Girault, and Xavier Nicollin.

- PhD in progress: Martin Vassor, "Analysis and types for safe dynamic software reconfigurations"; Univ. Grenoble Alpes; since November 2017; co-advised by Pascal Fradet and Jean-Bernard Stefani.

- Internships: Jonathan Julou and Martin Portalier, "Formal proofs for real-time systems analysis"; ENSIMAG; co-advised by Pascal Fradet, Xiaojie Guo, Maxime Lesourd and Sophie Quinton.

9.3.3. Juries

- Alain Girault was referee for the Habilitation thesis of Julien De Antoni (Université Côte d'Azur) and was member of the PhD thesis of Pierre Donat-Bouillud (Sorbonne Université). He was also vice-president of the Inria Starting Research Position (SRP) Advanced Research Position (ARP) jurys.
- Jean-Bernard Stefani was examiner for the Habilitation (HDR) jury of Thomas Ledoux (Université de Nantes).
- Sophie Quinton was a member of the PhD thesis committee of Hugo Daigmorte (Université de Toulouse).

9.4. Popularization

9.4.1. Articles and contents

Software is a fundamental pillar of modern scientific research, across all fields and disciplines. However, there is a lack of adequate means to cite and reference software due to the complexity of the problem in terms of authorship, roles and credits. This complexity is further increased when it is considered over the lifetime of a software that can span up to several decades. Building upon the internal experience of Inria, we have provided a contribution to the ongoing efforts in order to develop proper guidelines and recommendations for software citation and reference. Namely, we recommend: (1) a richer taxonomy for software contributions with a qualitative scale; (2) to put humans at the heart of the evaluation; and (3) to distinguish citation from reference [10]. This has been a joint work between Alain Girault and colleagues from Software Heritage (Roberto Di Cosmo), from Inria's Evaluation Committee (Pierre Alliez, Benjamin Guedj, Mohand-Saïd Hacid, Nicolas Rougier), and a specialist in reproducible research (Arnaud Legrand).

9.4.2. Interventions

Sophie Quinton played the role of one of the experts in the fictional trial of a robot during the Transfo Festival in Grenoble. She also gave a lecture on the design and verification of real-time systems as part of the ISN curriculum for high school teachers.

Alain Girault played the role of one of the experts in the fictional trial of a robot during the Fête de la Science in Grenoble.

9.4.3. Creation of media or tools for science outreach

All SPADES members have contributed to the scenario of an animated movie, commissioned by the communication service of Inria, in order to popularise the research activities of SPADES.

<p align="center">**SPECFUN Project-Team**</p>

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. General Chair, Scientific Chair

- Alin Bostan is part of the Scientific advisory board of the conference series *Effective Methods in Algebraic Geometry* (MEGA).

- Alin Bostan is part of the scientific committee of the GDR EFI ("Functional Equations and Interactions") dependent on the mathematical institute (INSMI) of the CNRS. The goal of this GDR is to bring together various research communities in France working on functional equations in fields of computer science and mathematics.

- Frédéric Chyzak is member of the steering committee of the *Journées Nationales de Calcul Formel* (JNCF), the annual meeting of the French computer algebra community.

- Frédéric Chyzak was until July 2019 elected member (and chair) of the steering committee of the *International Symposium on Symbolic and Algebraic Computation* (ISSAC, 3-year term).

- Georges Gonthier is a member of the steering committee of the *Certified Programs and Proofs* Conference (CPP).

8.1.1.2. Member of the Organizing Committees

- Alin Bostan co-organizes, with Lucia Di Vizio, the *Séminaire Différentiel* between U. Versailles and Inria Saclay, with a bi-annual frequency (~ 30 participants per event).

- Alin Bostan co-organizes, with Lucia Di Vizio, the working group *Marches dans le quart de plan*, at Institut Henri Poincaré (Paris), with a bi-monthly frequency (~ 15 participants per event).

8.1.2. Scientific Events: Selection

8.1.2.1. Member of the Conference Program Committees

- Alin Bostan and Frédéric Chyzak have served as conference program committee members for the first *Maple Conference*.

- Georges Gonthier has served as a conference program committee members for the first *Workshop on Formal Methods for Blockchains* (FMBC).

8.1.2.2. Reviewer

- Frédéric Chyzak has served as reviewer for the selection of the international conferences CICM 2019, ISSAC 2019, and Maple Conference 2019.

- Alin Bostan has served as reviewer for the selection of the international conferences FPSAC 2019 and Maple Conference 2019.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

- Alin Bostan is on the editorial board of the *Journal of Symbolic Computation*.

- Alin Bostan is on the editorial board of the *Annals of Combinatorics*.

- Guy Fayolle is associate editor of the journal *Markov Processes and Related Fields*.

- Georges Gonthier is on the editorial board of the *Journal of Formalized Reasoning*.

8.1.3.2. Reviewer - Reviewing Activities

- Alin Bostan has served as a reviewer for the journals: *Journal of Symbolic Computation*, *Journal of Combinatorial Theory, Series A*, *Applicable Algebra in Engineering Communications and Computing*, *Journal of Combinatorial Algebra*, *Annales Henri Lebesgue*, *Annali dell Università di Ferrara*, *Mathematics of Computation*, *Séminaire Lotharingien de Combinatoire*.
- Guy Fayolle has been a reviewer for *Advances in Applied Probability*, *Markov Processes and Related Fields*, *Probability Theory and Related Fields*, *Queueing Systems: Theory and Applications*, *European Journal of Combinatorics*, *Journal of Statistical Physics*, *Physica A*, *Springer Science*.

8.1.4. Invited Talks

- Frédéric Chyzak has been invited to give a talk on his joint work with Alin Bostan about the enumeration of walks with small steps in the quarter plane at the international conference Transient Transcendence in Transylvania (Braov, Romania).
- Frédéric Chyzak has been invited to give talks on his joint work with Philippe Dumas about Becker's conjecture on Mahler functions: at the conference Équations Fonctionnelles et Interactions (Anglet), during a Seminar on Symbolic Computation at the Academy of Mathematics and Systems Science, Chinese Academy of Sciences (Beijing, China), and at the conference Differential Galois Theory in Strasbourg (Strasbourg).
- Frédéric Chyzak has been invited to give a talk on his joint work with Alin Bostan, Pierre Lairez, and Bruno Salvy (AriC) at the 6th Summer School in Symbolic Computation (Chongqing, China).
- Alin Bostan has been invited to give a talk at the *Algebraic Marvels in Differential Equations*, Universidade Lisboa, Lisbonne, Portugal, February 2019.
- Alin Bostan has been invited to give a talk at the Combinatorics Seminar, LaBRI, Bordeaux, March 2019.
- Alin Bostan has been a plenary speaker at the international conference AofA 2019, Luminy (France), June 2019.
- Alin Bostan has been a plenary speaker at the international conference FPSAC 2019, Ljubljana (Slovenia), July 2019.
- Alin Bostan has been invited to give a series of five lectures at the Vienna Summer School of Mathematics, Weissensee, Austria, Sept. 2019.

8.1.5. Leadership within the Scientific Community

8.1.5.1. Regular Research Seminar

The team organizes a regular seminar, with roughly 10 talks a year. The topics reflect the team's interests: computer algebra, combinatorics, number theory, formal proofs, and related domains.

8.1.5.2. Research Working Group

In 2018, we have set up a working group *Marches dans le quart de plan* around the study of walks in the quarter plan, a very active research topic in probability theory and enumerative combinatorics in recent years. The working group is organized at Institut Henri Poincaré, with a regularity of two sessions per month. The original purpose was to read the article "On the Nature of the Generating Series of Walks in the Quarter Plane" by T. Dreyfus, C. Hardouin, J. Roques, M. Singer, published in Invent. Math. this year. But the reality exceeded expectations: the working group attracted a dozen of people, working either in computer science or pure mathematics, who began to interact and a very good dynamic was created. Altogether, 15 sessions have taken place in 2019.

8.1.5.3. International Conference

Together with Kilian Raschel (CNRS, U. Tours), Alin Bostan co-organized an international conference, Transient Transcendence in Transylvania, held in Romania from May 13 to 17, 2019. They took care together of all the infrastructure for this conference: program, invitations, web page, etc. This conference was a unique event in Romania, with a truly exceptional list of speakers, from several continents and countries: South Africa, Germany, Austria, Canada, United States, France, Netherlands, Poland, and of course, Romania. As a natural continuation of the conference, a volume will be published in the Springer collection PROMS (Proceedings in Mathematics & Statistics), with Bostan and Raschel as editors.

8.1.6. Scientific Expertise

- Guy Fayolle is scientific advisor and associate researcher at the *Robotics Laboratory of Mines ParisTech*.

- Georges Gonthier is taking part in an interministerial survey on the technological roadblocks for blockchains, which has been jointly commissioned to Inria, CEA and IMT by the Ministère de l'Economie, the Ministère de l'Education supérieure et de la Recherche, and the Secrétariat d'Etat au Numérique. He also participates to the Blockchain Taskforce set up by the French government.

8.1.7. Research Administration

- Frédéric Chyzak is project coordinator of the ANR project *De rerum natura*.

- Guy Fayolle is a member of the working group for *Computer System Modeling* of the *International Federation for Information Processing* (IFIP WG 7.3).

- Georges Gonthier serves on the Conseil de l'École Doctorale de Mathématiques Hadamard.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master:

Alin Bostan, *Algorithmes efficaces en calcul formel*, 36h, M2, MPRI, France.

Alin Bostan, *Modern Algorithms for Symbolic Summation and Integration*, 21h, M2, Master d'Informatique Fondamentale de l'ENS de Lyon, France.

Frédéric Chyzak, *Algorithmes efficaces en calcul formel*, 22.5h, M2, MPRI, France.

Pierre Lairez, *Algorithmique avancée (INF550)*, TD, 18h, M2, École polytechnique, France.

Pierre Lairez, *Les bases de la programmation et de l'algorithmique (INF411)*, TD, 40h, M1, École polytechnique, France.

8.2.2. Juries

- Alin Bostan has served as an examiner in the PhD jury of Robin Larrieu, *Arithmétique rapide pour des corps finis*, Ecole polytechnique, December 10, 2019.

- Alin Bostan has served as a member of the monitoring PhD committee of Youssef Abdelaziz, Univ. Paris 6.

- Alin Bostan has served as a member of the monitoring PhD committee of Manon Bertin, Univ. Rouen.

- Frédéric Chyzak has served as a reviewer in the PhD jury of Joelle Saade, *Méthodes symboliques pour les systèmes différentiels linéaires à singularité irrégulière*, Université de Limoges, November 5, 2019.

- Frédéric Chyzak has served as a reviewer in the PhD jury of Amélie Trotignon, *Marches sur des réseaux dans des cônes : aspects combinatoires et probabilistes*, Université de Tours, December 6, 2019.

- Pierre Lairez has served as a reviewer in the PhD jury of Josué Tonelli-Cueto, *Condition and Homology in Semialgebraic Geometry*, TU Berlin, November 28, 2019.

- Georges Gonthier has served in the PhD jury of Armaël Guénaud, *Mechanized Verification of the Correctness and Asymptotic Complexity of Programs*, Université de Paris, December 16, 2019.

8.3. Popularization

8.3.1. Articles and contents

- Georges Gonthier published an interview article *Blockchain: ce que c'est, comment ça marche* in La Recherche, **545**, March 2019.

- Georges Gonthier co-wrote with Ivan Odonnat (Banque de France) *L'avenir du bitcoin et de la blockchain*, in Les Carnets de l'Institut Diderot (2019).

<p style="text-align:center; color:red; font-weight:bold;">STAMP Project-Team</p>

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. Member of the Organizing Committees

Yves Bertot and Maxime Dénès organized the Coq User and Developer workshop in Sophia Antipolis, June 3–7, 2019.

8.1.2. Scientific Events: Selection

8.1.2.1. Member of the Conference Program Committees

Enrico Tassi was a member of the PC for PADL and LFMTP. Benjamin Grégoire was a member of the PC for latincrypt and PriSC. Cyril Cohen was a member of the PC for CICM. Yves Bertot was a member of the PC for ITP.

8.1.2.2. Reviewer

Benjamin Grégoire: Conference on Computer and Communication Security (CCS), Certified Programs and Proofs (CPP), Interactive Theorem Proving (ITP). Cyril Cohen: LICS.

8.1.3. Journal

8.1.3.1. Reviewer - Reviewing Activities

Laurent Théry: Journal of Automated Reasoning, Science of Computer Programming, Formal Aspects of Computing. Cyril Cohen: MSCS (Journal on Mathematical Structures in Computer Science), Journal of Automated Reasoning, Theoretical Computer Science, Information Processing Letters.

8.1.4. Invited Talks

Enrico Tassi gave talks at the Coq developer Working Group on the migration of the package index from opam v1 to opam v2 and at the Coq workshop on the improvements to SSReflect in Coq 8.10 (with E. Martin-Dorel from the University of Toulouse). He also gave a talk in the seminar of the Inria Parsifal project-team on synthesizing proved equality tests.

Benjamin Grégoire gave an invited talk at PriSC (Principles of Secure Compilation) in January 2019.

Cyril Cohen gave a talk at the *Lean Together* meeting in 2019, on using unification hints.

8.1.5. Scientific Expertise

Yves Bertot is a member of the steering committee for the Inria-Nomadic Labs collaboration.

Yves Bertot is a member of the steering committee for the ITP series of conferences.

Yves Bertot was a member of the hiring committee for an associate professor at ENSIIE (Ecole Nationale Supérieure d'Informatique pour l'Industrie et l'Entreprise) in Evry, France.

8.1.6. Research Administration

Benjamin Grégoire is a member of the CUMI committee facilitating communication between IT services, administrative services, and researchers at Inria.

Yves Bertot was coordinator for the evaluation of the theme "Proof and verification" in March 2019. This work involved polling 13 heads of Inria project teams for names of international experts, selecting an appropriate panel, and attributing a small group of experts to each project-team.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master : Yves Bertot, "Proofs and reliable programming using Coq", 21hours ETD, Sept-Nov 2019, Université Nice Côte d'Azur, France.

Doctorat : Benjamin Grégoire, "EasyCrypt and Jasmin", 14 ETD, summer school on Formal Techniques, Menlo College, California, USA, 18–25 May 2019.

Doctorat : Benjamin Grégoire, "Formal verification of masked implementations" Summer school on security of software/Hardware interfaces, 3 ETD, 8–12 July 2019, Inria, France.

Doctorat : Yves Bertot "Coq introductory course", EUTypes summer school, 6 ETD, Ohrid, Aug. 30–Sep. 4, 2019, North Macedonia.

8.2.2. Supervision

PhD: Damien Rouhling, *Formalization Tools for Classical Analysis – A Case Study in Control Theory*, Université Côte d'Azur, September 2019, supervised by Yves Bertot and Cyril Cohen [1].

Yves Bertot and Laurence Rideau supervise the doctoral thesis of Sophie Bernard.

Yves Bertot and Benjamin Grégoire supervise the doctoral thesis of Cécile Baritel-Ruet.

Benjamin Grégoire and Tamara Rezk (Indes) supervise the doctoral thesis of Mohamad El Laz.

8.2.3. Juries

Yves Bertot was a member of the Jury for the Habilitation to direct research of Guillaume Melquiond.

Laurent Théry was a member of the thesis committee for David Braun (University of Strasbourg).

Laurent Théry was an external reviewer for a PhD at ANU (Australia, anonymity rules apply).

Enrico Tassi was a member of the Jury for the PhD defense of Ulysse Gérard (Inria Saclay).

Yves Bertot was a member of the Jury with report duties for the thesis of Florian Faissole (University of Paris-Saclay).

Yves Bertot was a member of the Jury with report duties for the thesis of Armaël Guéneau (University of Paris Diderot).

Yves Bertot was a member of the Jury for the thesis of Gaëtan Gilbert (Institut Mines Télécom Atlantique, Nantes).

8.3. Popularization

8.3.1. Internal action

- Yves Bertot gave a talk on Coq in the *Café-In* series of seminars for all publics of Inria personnel.
- Yves Bertot gave a general presentation on Coq in the *Doctoral seminar* of Inria Sophia Antipolis Méditerranée.

SUMO Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Hervé Marchand is a member of the IFAC Technical Committees (TC 1.3 on Discrete Event and Hybrid Systems). He is the president of the steering committee of MSR (modélisation de systèmes réactifs).
- Nathalie Bertrand and Nicolas Markey are members of the steering committee of the Summer School MOVEP (*Modélisation et Vérification des Processus Parallèles*).
- Blaise Genest is member of the steering comittee of the international workshop FMAI (*Formal Methods and Artificial Intelligence*).

10.1.1.2. Member of the Organizing Committees

- Blaise Genest coorganized the 2nd workshop FMAI 2019 (Rennes, 2-3 May 2019).

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- Éric Badouel was member of the Program Committees of VECOS, ATAED, ICTAC, CRI, and JIMIS in 2019.
- Nathalie Bertrand was a member of the Program Committees of the following international events: TIME'19, RP'19, MFCS'19.
- Éric Fabre was a member of the Program Committee of CREST'19.
- Blaise Genest was a member of the Program Committee of FMAI'19.
- Loïc Hélouët was member of the Program Committee of ACSD'2019.
- Thierry Jéron served on the Program Committees of ICTSS'19 and SAC-SVT'20.
- Nicolas Markey was a member of the Program Committee of LATA'20.
- Ocan Sankur was a member of the Program Committee of FORMATS'19.

10.1.2.2. Reviewer

In 2019, members of SUMO reviewed submissions for following conferences: VECOS, ATAED, CARI, ICTAC, CONCUR, SOFSEM, FOCS, ATVA, VMCAI, ICALP, SAC-SVT, TAP, ACSD, MFCS, STACS, WODES, HSCC, FSTTCS, CSL, AAMAS, TACAS, FoSSaCS, LICS, PODC, MORE, RP.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Éric Badouel is co-editor-in-Chief of ARIMA Journal.
- Hervé Marchand is associate editor of the journal Discrete Event Dynamical Systems - Theory and applications since january 2019.

10.1.3.2. Reviewer - Reviewing Activities

In 2019, members of SUMO reviewed submissions for following journals: Automatica, Fundamenta Informaticae, Information and Computation, The Scientific Annals of Computer Science, Science of Computer Programming, ACM Transactions on Computational Logic, ACM Transactions on Embedded Computing Systems, Journal of Systems and Software, Mathematical Review (MathSciNet), Journal of Discrete Event Dynamical Systems, Formal Methods in System Design, Software Testing, Verification and Reliability, Journal of Logic and Computation, IEEE Transactions on Automatic Control, PLoS one, Performance Evaluation, Artificial Intelligence, Journal of Logic and Algebraic Methods in Programming, Logical Methods in Computer Science, ACM Transactions on Modeling and Computer Simulation, Journal of Systems and Software.

10.1.4. Invited Talks

- Nathalie Bertrand gave an invited talk at the international conference Formats'19 on Taming real-time stochastic systems.
- Blaise Genest was invited to the workshop SinFra'19 in Singapore and gave a talk on Trust in AI.
- Léo Henry was invited to a workshop on test generation by IMDEA (Madrid) to give a talk about test generation for timed automata using games.

10.1.5. Leadership within the Scientific Community

Nathalie Bertrand is the co-head of the *Groupe de Travail Vérif* (together with Pierre-Alain Reynier (LIS, Marseille)) which is part of *GDR Informatique Mathématique (GDR-IM)*.

10.1.6. Scientific Expertise

- Nathalie Bertrand was a reviewer for Thelam Fund and FWO (Belgium) and Grenoble-MSTIC. She served on the HCERES committee for Vérimag.
- Blaise Genest was reviewer for a DIGICOSME project.
- Loïc Hélouët was reviewer for ANR.
- Thierry Jéron was a reviewer for NWO (Netherlands Organisation for Scientific Research).
- Nicolas Markey served on the HCERES committee for LACL.

10.1.7. Research Administration

- Éric Badouel is the co-director (with Moussa Lo, UGB, Saint-Louis du Sénégal) of LIRIMA, the Inria International Lab for Africa. He is scientific officer for the African and Middle-East region at Inria DPEI (European and International Partnership Department). He is member of the executive board of GIS SARIMA.
- Nathalie Bertrand was nominated member of the Conseil National des Universités, section 27 (computer science) until November 2019.
- Emily Clément is a representative of PhD students in the Comité de Centre of Inria Rennes.
- Éric Fabre is the co-director (with Olivier Audouin, Nokia) of the joint lab of Nokia Bell Labs France and Inria. The lab has been running for 9 years and started in Nov. 2017 its 3rd phase of joint research teams. A series of 6 new started in 2017, for a duration of 4 years. They cover topics like network virtualization, network management, information theory, (distributed) machine learning, network security. SUMO is involved in the joint team SAPIENS.
  Éric Fabre is also a member of Inria Evaluation Commission since September 2019.
- Loïc Hélouët is member of Inria CNHSCT (committee for Health and Security). He is also a suppletive member in the Comité de Centre of Inria Rennes. He leads a working group of the comittee on harrassment, and another of daily life improvement. He is member of a commission at IRISA on harrassment.
- Thierry Jéron is a member of the IFIP Working Group 10.2 on Embedded Systems. He is a member of the Comité d'orientation scientifique (COS) of IRISA Rennes. He was member of the Comité de Centre of Inria Rennes until mid-2019. Since 2016 he is "référent chercheur" for the Inria-Rennes research center.
- Hervé Marchand was chairman of the *Comission des utilisateurs des moyens informatiques* (CUMI) in Rennes until December 2019. He is an elected member of the Comité de Centre at Inria Rennes since June 2019.
- Nicolas Markey manages the mentoring programme at Irisa/InriaRBA; this programme aims at having senior researchers transfering their experience to younger colleagues (including PhD students and postdoc). The programme currently concerns about 30 mentor/mentee pairs.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: Nathalie Bertrand, Advanced Algorithms (ALGO2), 20h, L3, Univ Rennes 1, France;

Licence: Loïc Hélouët, JAVA and algorithms, L2, 40h, INSA de Rennes, France.

Master: Éric Badouel, Logic and argumentation, 32h, Univ Yaoundé I, Cameroon.

Master: Nathalie Bertrand, Language Theory; Algorithms, 20h, Agrégation, ENS Rennes, France.

Master: Éric Fabre, Models and Algorithms for Distributed Systems (MADS), 10h, M2, Univ Rennes 1, France;

Master: Éric Fabre, Information Theory, 15h, M1, ENS Rennes, France.

Master: Loïc Hélouët, Algorithms, 4h, Agrégation, ENS Rennes, France;

Master: Loïc Hélouët, Algorithms and proof, 12h, Agrégation, ENS Rennes, France;

Master: Nicolas Markey, Verification of Complex Systems (CSV), 15h, M2, Univ Rennes 1, France;

Master: Nicolas Markey, Algorithms, 12h, Agrégation, ENS Rennes, France;

Master: Ocan Sankur, Verification of Complex Systems (CSV), 10h, M2, Univ Rennes 1, France;

Master: Ocan Sankur, *Travaux pratiques*, Analyse et Conception Formelle (ACF), 22h, M1, Univ Rennes 1, France;

10.2.2. Supervision

10.2.2.1. PhD Students

- PhD: Robert Fondze Jr Nsaibirni, A Guarded Attribute Grammar Based Model for User Centered, Distributed, and Collaborative Case Management – Case of the Disease Surveillance Process [3], supervised by Éric Badouel. Defended at the University of Yaoundé I, Cameroon in April 2019.

- PhD: Karim Kecir, Performance Evaluation of Urban Rail Traffic Management Techniques [2], supervised by Loïc Hélouët and Pierre Dersin (Alstom), Université Rennes 1, July 2019.

- PhD: Samy Jaziri, Automata on Timed Structures, supervised by Nicolas Markey, Université Paris Saclay, September 2019.

- PhD: Mauricio Gonzalez, Stochastic Games on Graphs with Applications to Smart-Grids Optimization, supervised by Nicolas Markey, Université Paris Saclay, November 2019.

- PhD: Hugo Bazille, Detection and Quantification of Events in Stochastic Systems [1], supervised by Blaise Genest and Éric Fabre, Université Rennes 1, December 2019.

- PhD: The Anh Pham, Efficient state-space exploration for asynchronous distributed programs - Adapting unfolding-based dynamic partial order reduction to MPI programs [4], supervised by Thierry Jéron and Martin Quinson (Myriads, Inria Rennes), ENS Rennes, December 2019.

- PhD in progress: Sihem Cherrared, Diagnosis of multi-tenant programmable networks, started Dec. 2016, Éric Fabre, Gregor Goessler (Inria, Spades) and Sofiane Imadali (Orange).

- PhD in progress: Emily Clément, Verification and synthesis of control systems: efficiency and robustnes, started Dec. 2018, supervised by Thierry Jéron, Nicolas Markey, and David Mentré (Mitsubishi Electric)

- PhD in progress: Rodrigue Djeumen Djatcha, Collaborative Model for Urban Crowdsourcing, started in September 2017, University of Douala, Cameroon, supervised by Éric Badouel.

- PhD in progress: Erij Elmajed, Diagnosis of reconfigurable systems, started March 2017, Éric Fabre and Armen Aghasaryan (Nokia).

- PhD in progress: Léo Henry, Optimal test-case generation with game theory, started Oct. 2018, supervised by Thierry Jéron and Nicolas Markey.

- PhD in progress: Abdul Majith, Control of Adaptive Systems, started in Jan. 2019, supervised by Hervé Marchand, Ocan Sankur, and Dinh Thai-Bui (Nokia Bell Labs).
- PhD in progress: Anirban Majumdar, Games for distributed networks: models and algorithms, ENS Paris Saclay, started Sept 2018, supervised by Nathalie Bertrand and Patricia Bouyer (LSV).
- PhD in progress: Arthur Queffelec, Tradeoff between Robustness and Optimality in Strategic Reasoning, started Nov. 2018, supervised by Ocan Sankur and François Schwarzentruber (Logica, IRISA).
- PhD in progress: Victor Roussanaly, Efficient verification of timed systems, started Sep. 2017, supervised by Nicolas Markey and Ocan Sankur.
- PhD in progress: Suman Sadhukhan, Modelling and parameterized verification of mobile networks, started Oct. 2018, supervised by Nathalie Bertrand, Nicolas Markey and Ocan Sankur.
- PhD in progress: Rituraj Singh, Data-centric Workflows for Crowdsourcing Applications, started Feb. 2018, supervised by Loïc Hélouët.
- PhD in progress: Bastien Thomas, Automated verification of randomized distributed algorithms, started in Oct. 2019, supervised by Nathalie Bertrand and Josef Widder (Interchain, Austria).

10.2.2.2. Master Students

- Nathalie Bertrand supervised the master's thesis (M2) of Bastien Thomas, feb-june 2019.
- Blaise Genest and and Léo Henry supervise (2 h/week during 6 months) Alexandre Drewery, a master 1 student. The topic is reinforcement learning of mixed discrete/continuous systems.

10.2.2.3. Other Internships

- L3 Internship of Pierre Boudard, ENS ULM, supervised by Éric Fabre.
- L2 Internship of Kritin Garg, supervised by Éric Fabre and Blaise Genest.
- L3 Internship of Sharvik Mital, supervised by Blaise Genest and Loïc Hélouët.
- L3 Internship of Mathieu Poirier, supervised by Éric Badouel and Adrian Puerto Aubel.

10.2.3. Juries

10.2.3.1. PhD Defenses

- Nathalie Bertrand was an examiner for the PhD thesis of Damien Busatto-Gaston (Université Aix-Marseille, december 2019).
- Éric Fabre took part to the jury for the PhD in Computer Science of Maha Mdini, Institut Mines Telecom (IMT) Atlantique, Sept. 2019
- Blaise Genest was a reviewer for the PhD of Sukanya Basu, IIT Bombay, India.
- Hervé Marchand was an examiner in the PhD defense of Raphael Jakse, Université Grenoble Alpes in December 2019.
- Nicolas Markey was a reviewer for the PhD thesis of Nicola Gigante, Jan 2019, University Udine, Italy.

10.2.3.2. Other Juries

- Nathalie Bertrand was in the *Moyens incitatifs* committee for Inria Rennes Bretagne Atlantique in 2019.
- Éric Fabre was in the hiring committee for CRCN positions at Inria Rennes Bretagne Atlantique in 2019.
- Ocan Sankur was in the hiring committee for two Maitre de conférences positions at Université de Nantes in 2019.

10.3. Popularization

10.3.1. Education

Nicolas Markey is involved in the organization of action "J'Peux Pas, J'Ai Informatique", whose aim is to break down stereotypes about computer science for 12-year-old pupils.

TAMIS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Member of Conference Steering Committees

Olivier Zendra is a founder and a member of the Steering Committee of ICOOOLPS (International Workshop on Implementation, Compilation, Optimization of OO Languages, Programs and Systems)

9.1.1.2. Member of the Conference Program Committees

Annelie Heuser was a member of the following conference program committees: CARDIS 2019, COSADE 2019, PROOFS 2019.
Olivier Zendra was a member of the program committee of ICOOOLPS 2019.

9.1.1.3. Reviewer

Tania Richmond was a reviewer for TCHES 2019 and TCHES 2020.
Alexandre Gonzalvez was a reviewer for TCHES 2019.
Matthieu Mastio was a reviewer for DATE2020.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

Annelie Heuser was a member of TCHES 2019.

9.1.2.2. Reviewer - Reviewing Activities

Annelie Heuser was a reviewer of several papers in Journal of Cryptographic Engineering, Transactions on Information Forensics & Security, IEEE Transactions on Circuits and Systems, Transactions on Information Forensics & Security.
Tania Richmond was a reviewer for Transactions on Information Forensics and Security (TIFS)

9.1.3. Invited Talks

Annelie Heuser was invited to present at the seminar of Paris 8 on "Mathématiques Discrètes, Workshop Workshop on Randomness and Arithmetics for Cryptography on Hardware, Codes et Cryptographie", GDR Sécurité - Sécurité, fiabilité et test des SoC2, the Summer School on real-world crypto and privacy.
Annelie Heuser was invited to the Dagstuhl seminar on Secure Composition for Hardware Systems.
Annelie Heuser was invited to the Lorentzcenter on AI+Sec: Artificial Intelligence and Security, and SHARD: Bridging the Gap Between Software and Hardware Security.

9.1.4. Expertise

Tania Richmond reviewed for the HiPEAC Collaboration Grants 2019.
Annelie Heuser reviewed an application to receive a national application grant (inside Europe).
Olivier Zendra is a CIR expert for the MENESR.
Olivier Zendra participated to the CRHC and CRCN national juries for Inria as a member of Inria's evaluation committee.
Olivier Zendra is a member of the editorial board and co-author of the "HiPEAC Vision 2021"

9.1.5. Research Administration

Olivier Zendra is a member of Inria's evaluation committee.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Christophe Genevey-Metat taught:

- Programming in Java to Licence 1, University Rennes 1,
- Introduction at Security to Master 1, University Rennes 1.

Cassius de Oliveira Puodzius taught:

- 24h of Reverse Engineering + Malware analysis for the Introduction at Security to Master1 at Rennes 1,
- 6h of Java Programming to Licence1 at ECAM Rennes.

Tania Richmond taught Physical Attacks in "Préparation à l'Agrégation" en Sciences de l'Ingénieur, ENS Rennes.

9.2.2. Supervision

- PhD in progress: Christophe Genevey Metat (Rennes 1): , October 2018, Jean-Marc Jezequel, Benoit Gerard, Annelie Heuser and Clementine Maurice
- PhD in progress : Alexandre Gonzalvez, On Obfuscation via crypto primitives, April 2016, Caroline Fontaine.
- PhD defended in 2019 : Nisrine Jafri (Rennes1), On fault Injection detection with MC of Binary code, Axel Legay and Jean-Louis Lanet.
- PhD in progress : Tristan Ninet (Rennes 1), Vérification formelle d'une implémentation de la pile protocolaire IKEv2, December 2016, Stéphanie Delaune, Romaric Maillard and Olivier Zendra
- PhD in progress: Lamine Nouredine (Rennes1); Automatic techniques for packing detection, classification and unpacking to stop malware propagation, November 2017, Stephane Ubeda, Olivier Zendra, Annelie Heuser.
- PhD in progress: Cassius de Oliveira Puodzius (Rennes1); Threat malware analysis, February 2019, Ludovic Me, Olivier Zendra, Annelie Heuser.
- PhD in progress: Duc Phuc Pham (Rennes1); Malware analysis through side-channel information, May 2019, Jean-Louis Lanet, Annelie Heuser, Olivier Zendra.

9.2.3. Juries

- Annelie Heuser was a referee for the PhD defense of Nisrine Jafri (University Rennes).
- Olivier Zendra was a member of the jury for the PhD defense of Delphine Beaulaton at University of Southern Brittany in Vannes.

TEA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Selection

Jean-Pierre Talpin served in the program committee of the ACM LCTES'19, ACM SAC'19 and SCOPES'19 conferences.

Thierry Gautier reviewed articles for *Journal of Systems Architecture* (Elsevier).

10.1.2. Journal

Jean-Pierre Talpin is Associate Editor with the ACM Transactions for Embedded Computing Systems (TECS).

Thierry Gautier reviewed articles for *IEEE Access* and *Science of Computer Programming*.

10.1.3. Invited Talks

Jean-Pierre Talpin gave an invited presentation entitled "Towards verified programming of embedded devices" at DATE'19, Florence.

10.2. Teaching - Supervision - Juries

Jean-Pierre Talpin gave a one week graduate-level course at the Sheng Yuan Honors College, BUAA, entitled: "introduction to program verification".

Jean-Pierre Talpin co-supervises the PhD Theses of Stéphane Kastenbaum, Simon Lunel, Liangcong Zhang, Jean-Joseph Marty and Lucas Franceschino

Thierry Gautier served as external assessor for professor position application at Nankai University (China).

<p style="text-align:center">**TOCCATA Project-Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

J.-C. Filliâtre, scientific chair and co-organizer of EJCP (École Jeunes Chercheurs en Programmation du GDR GPL) at Strasbourg on June 24–28, 2019. 5 days / 8 lectures / 25 participants. http://ejcp2019.icube.unistra.fr/

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

S. Boldo, program co-chair of the 26th IEEE Symposium on Computer Arithmetic (ARITH 2019), Kyoto, Japan. [35]

10.1.2.2. Member of the Conference Program Committees

S. Boldo, 11th NASA Formal Methods Symposium (NFM 2019)

J.-C. Filliâtre, 10th International Conference on Interactive Theorem Proving (ITP 2019)

J.-C. Filliâtre, 9th ACM SIGPLAN International Conference on Certified Programs and Proofs (CPP 2020)

J.-C. Filliâtre, European Symposium on Programming (ESOP 2020)

G. Melquiond, 26th IEEE Symposium on Computer Arithmetic (ARITH 2019)

G. Melquiond, 10th International Conference on Interactive Theorem Proving (ITP 2019)

10.1.2.3. Reviewer

The members of the Toccata team have reviewed numerous papers for numerous international conferences.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

G. Melquiond, member of the editorial board of *Reliable Computing*.

J.-C. Filliâtre, member of the editorial board of *Journal of Functional Programming*.

10.1.3.2. Reviewer - Reviewing Activities

The members of the Toccata team have reviewed numerous papers for numerous international journals.

10.1.4. Invited Talks

G. Melquiond, "Computer Arithmetic and Formal Proofs" [19], at the 30th Journées Francophones des Langages Applicatifs (JFLA 2019).

J.-C. Filliâtre, "Deductive Verification of OCaml Libraries" [17], at the 15th International Conference on integrated Formal Methods (iFM), December 2019, Bergen, Norway.

J.-C. Filliâtre, "Retour sur 25 ans de programmation avec OCaml" [18], at Journées Francophones des Langages Applicatifs (JFLA), January 2019, Les Rousses, France.

J.-C. Filliâtre, "The Why3 tool for deductive verification and verified OCaml libraries", at Frama-C/Spark day 2019, Paris, France.

10.1.5. Leadership within the Scientific Community

S. Boldo, elected chair of the ARITH working group of the GDR-IM (a CNRS subgroup of computer science) with J. Detrey (Inria Nancy) and now L.-S. Didier (Univ. Toulon).

J.-C. Filliâtre, chair of IFIP WG 1.9/2.15 verified Software.

10.1.6. Scientific Expertise

G. Melquiond, member of the scientific commission of Inria-Saclay, in charge of selecting candidates for PhD grants, Post-doc grants, temporary leaves from universities ("délégations").

S. Boldo, member of the program committee for selecting postdocs of the maths/computer science program of the Labex mathématique Hadamard.

S. Boldo has mentored for 1 year a female PhD student of University Paris-Saclay (from epidemiology).

J.-C. Filliâtre, grading the entrance examination at X/ENS (*"option informatique"*).

C. Marché, member of DigiCosme committee for research and innovation (selection of projects for working groups, post-doc grants, doctoral missions, invited professors)

10.1.7. Research Administration

G. Melquiond, member of the committee for the monitoring of PhD students (*"commission de suivi doctoral"*).

S Boldo, member of the CLFP (*"commission locale de formation permanente"*).

S. Boldo, member of the (national) IES commission.

S. Boldo, member of the CDT commission of Saclay (*"commission de développement technologique"*).

S. Boldo, member of the STIC department commission of Univ. Paris-Sud.

S. Boldo, member of the executive commission for the Digicosme Labex.

S. Boldo, deputy scientific director (DSA) of Inria Saclay research center from January 1st, 2019

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master Parisien de Recherche en Informatique (MPRI) https://wikimpri.dptinfo.ens-cachan.fr/doku.php: "Proofs of Programs" http://www.lri.fr/~marche/MPRI-2-36-1/ (M2), C. Marché (12h).

A. Lanco, *Unix et programmation Web*, 24h, L2, Université Paris-Saclay, France.

G. Melquiond, *Programmation C++ avancée*, 12h, M2, Université Paris-Saclay, France.

J.-C. Filliâtre, *Langages de programmation et compilation*, 25h, L3, École Normale Supérieure, France.

J.-C. Filliâtre, *Les bases de l'algorithmique et de la programmation*, 15h, L3, École Polytechnique, France.

J.-C. Filliâtre, *Compilation*, 18h, M1, École Polytechnique, France.

S. Boldo was invited in the Xavier Leroy's course at Collège de France on Dec 19th.

10.2.2. Supervision

HDR: G. Melquiond, "Formal Verification for Numerical Computations, and the Other Way Around" [11], Université Paris-Sud, Apr. 1st, 2019.

PhD: F. Faissole, "Formalisations d'analyses d'erreurs en analyse numérique et en arithmétique à virgule flottante", Université Paris-Saclay & Université Paris-Sud, Dec 13th 2019, supervised by S. Boldo and A. Chapoutot. [Not yet on HAL]

PhD: A. Coquereau, "Amélioration de performances du solveur SMT Alt-Ergo grâce à l'intégration d'un solveur SAT efficace", Université Paris-Saclay & Université Paris-Sud, Dec 16th 2019, supervised by S. Conchon, F. Le Fessant et M. Mauny. [Not yet on HAL]

PhD: M. Roux, "Extensions de l'algorithme d'atteignabilité arrière dans le cadre de la vérification de modèles modulo théories", Université Paris-Saclay & Université Paris-Sud, Dec 19th 2019, supervised by Sylvain Conchon. [Not yet on HAL]

PhD in progress: R. Rieu-Helft, "Développement et vérification de bibliothèques d'arithmétique entière en précision arbitraire", since Oct. 2017, supervised by G. Melquiond and P. Cuoq (TrustIn-Soft).

PhD in progress: D. Gallois-Wong, "Vérification formelle et filtres numériques", since Oct. 2017, supervised by S. Boldo and T. Hilaire.

PhD in progress: Q. Garchery, "Certification de la génération et de la transformation d'obligations de preuve", since Oct. 2018, supervised by C. Keller, C. Marché and A. Paskevich.

PhD in progress: A. Lanco, "Stratégies pour la réduction forte", since Oct. 2019, supervised by T. Balabonski and G. Melquiond.

G. Turbiau has been a M1 trainee for 2 months, supervised by S. Boldo.

10.2.3. Juries

S. Boldo, member of the Inria CRCN recruiting juries, national one and at Rennes.

S. Boldo, president of the PhD defense of Clothilde Jeangoudoux, Sorbonne University, May 21st

S. Boldo, reviewer of the habilitation of Christoph Lauter, Sorbonne University, May 22nd

S. Boldo, reviewer of the PhD defence of Florent Bréhard, ENS Lyon, July 12th

S. Boldo, reviewer of PhD defence of Damien Rouhling, Université Côte d'Azur, Sept 30th

S. Boldo, president of the PhD defense of Yohan Chatelain, Université Paris-Saclay, Dec 12th

S. Boldo, president of the PhD defense of Armaël Guéneau, Université de Paris, Dec 16th

S. Boldo, member of the PhD defense of Antoine Kaszczyc, Université Paris-Nord, Dec 18th

J.-C. Filliâtre, reviewer of the PhD defense of Y. El Bakouny, "Scallina: On the Intersection of Scala and Gallina", Université Saint-Joseph, Beirut, Lebanon, December 19, 2019.

J.-C. Filliâtre, president of the PhD defense of L. Blatter "Relational properties for specification and verification of C programs in Frama-C", University Paris Saclay, September 26, 2019.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

S. Boldo has been the scientific head for Saclay for the MECSI group for networking about computer science popularization inside Inria until October 2019.

She was also responsible (with A. Couvreur of the Grace team a,d M. Quet of the SCM) for the 2019 "Fête de la science" on October 10th and 11th 2019. Teenagers were welcomed on 8 activities ranging from unplugged activities with Duplo construction toys to programming, and from applied mathematics to theoretical computer science.

10.3.2. Education

S. Conchon and J.-C. Filliâtre, together with K. Nguyen and T. Balabonski (members of the LRI team but not members of Toccata), wrote a book "Numérique et Sciences Informatiques, 30 leçons avec exercices corrigés" (Ellipses, August 2019) [36] targeting the new Computer Science programme in the French high school system, which started in September 2019.

S. Boldo gave a talk and was involved in the organization of the "Rencontres des Jeunes mathématiciennes et Informaticiennes" organized in Saclay on Oct 21st and 22nd 2019. About 20 female teenagers were welcomed for two days with talks and exercises to discover research.

10.3.3. Interventions

C. Marché presented an overview of the Why3 tool and its ecosystem at the Paris Open Source Summit in Saint-Denis, Dec. 11, 2019, as part of a workshop "ATELIER Inria : OCaml, Coq, Why 3: pour concevoir codes et infrastructures plus sûrs en C, Java, Javascript, Ada" https://www.opensourcesummit.paris/conferences.html?date=1576022400).

S. Boldo gave a talk at a high school in Sceaux on Feb 8th.

S. Boldo presented the floating-point arithmetic at IRIF to the members of the CODYS ANR on April 1st.

VERIDIS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Organization of Scientific Events

10.1.1.1. Membership in Organizing Committees

Jasmin Blanchette co-organized the *2nd Deduction Mentoring Workshop* (DeMent 2019). He also coorganized the *VeriDis Group Retreat + Second European Workshop on Higher-Order Automated Reasoning* (Matryoshka 2019).

Pascal Fontaine co-organized the Third Workshop on Mathematical Logic and its Applications, in Nancy.

Igor Konnov and Stephan Merz were organizers of the sixth *Workshop on Formal Reasoning in Distributed Algorithms* (FRIDA 2019), colocated with DISC 2019 in Budapest, Hungary.

The International Summer School on Verification Techniques, Systems, and Applications (VTSA) has been organized since 2008 in the Greater Region (Nancy, Saarbrücken, Luxembourg, Liège, and Koblenz), and Stephan Merz and Christoph Weidenbach are co-organizers of VTSA. In 2019, VTSA took place in August in Esch sur Alzette, Luxembourg.

10.1.2. Program Committees

10.1.2.1. Chair of Conference Program Committees

Jasmin Blanchette co-chaired the program committee of the *9th ACM SIGPLAN International Conference on Certified Programs and Proofs* (CPP 2020).

Pascal Fontaine served as the chair of the *Conference on Automated Deduction* (CADE-27).

Dominique Méry co-chaired the program committee of the *13th International Symposium on Theoretical Aspects of Software Engineering* (TASE 2019).

Stephan Merz was Tool Exhibition Chair at the *3rd World Congress for Formal Methods* (FM Week 2019).

10.1.2.2. Membership in Conference Program Committees

Jasmin Blanchette served on the program committees of the *27th International Conference on Automated Deduction* (CADE-27), *19th Conference on Formal Methods in Computer-Aided Design* (FM-CAD 2019), *21st International Symposium on Principles and Practice of Declarative Programming* (PPDP 2019), *12th International Symposium on Frontiers of Combining Systems* (FroCoS 2019), *26th International Conference on Tools and Algorithms for the Construction and Analysis of Systems* (TACAS 2020), and *4th Conference on Artificial Intelligence and Theorem Proving* (AITP 2019). He also served on the following workshop committees: *Second Workshop on Automated Reasoning: Challenges, Applications, Directions, Exemplary Achievements* (ARCADE 2019) and *Deduktionstreffen 2019*.

Pascal Fontaine served on the program committees of the *International Symposium on Frontiers of Combining Systems* (FroCoS 2019), the *International Conference on Automated Reasoning with Analytic Tableaux and Related Methods* (TABLEAUX 2019), and the *International Conference on Theory and Applications of Satisfiability Testing* (SAT 2019). He also served on the committee of *Automated Reasoning: Challenges, Applications, Directions, Exemplary Achievements* (ARCADE 2019).

Dominique Méry served on the program committees of the *16th International Colloquium on Theoretical Aspects of Computing* (ICTAC 2019), the *8th Workshop on Formal Methods for Interactive Systems* (FMIS 2019), the *Workshop on Practical Formal Verification for Software Dependability* (AFFORD'19), the *24th International Conference on Engineering of Complex Computer Systems* (ICECCS 2019), the *Workshop on Formal Methods for Autonomous Systems* (FMAS 2019), the *23rd International Symposium on Formal Methods* (FM 2019), the *Workshop on Models and Data Engineering for Cyber-Physical Systems* (CPS@MEDI 2019), the *Workshop on Formal Models for Mastering Heterogeneous Multifaceted Systems* (REMEDY 2019), the *3rd Workshop on Formal Approaches for Advanced Computing Systems* (FAACS 2019), the *21st International Conference on Formal Engineering Methods* (ICFEM 2019), and the *9th International Conference on Model and Data Engineering* (MEDI 2019).

Stephan Merz served on the program committees of the *19th International Workshop on Automated Verification of Critical Systems* (AVoCS 2019), the *Doctoral Symposium, Formal Methods* (DS-FM 2019), the *5th International Workshop on Formal Integrated Development Environment* (F-IDE 2019), and the *21st International Conference on Formal Engineering Methods* (ICFEM 2019).

Sorin Stratulat served on the program committees of the *International Symposium on Symbolic and Numeric Algorithms for Scientific Computing* (SYNASC 2019), the *International Conference on Information Assurance and Security* (IAS 2019), and the *International Conference on Computational Intelligence in Security for Information Systems* (CISIS 2019).

Thomas Sturm served on the program committees of the *21st International Workshop on Computer Algebra in Scientific Computing* (CASC 2019) and the *4th International Workshop on Satisfiability Checking and Symbolic Computation* (SC-SQUARE 2019).

Uwe Waldmann served on the program committees of the *27th International Conference on Automated Deduction* (CADE-27) and the *International Conference on Automated Reasoning with Analytic Tableaux and Related Methods* (TABLEAUX 2019).

Christoph Weidenbach served on the program committees of the *International Conference on Automated Deduction* (CADE 27), and the *International Symposium on Frontiers of Combining Systems* (FroCoS 2019). He also served on the committee of *Automated Reasoning: Challenges, Applications, Directions, Exemplary Achievements* (ARCADE 2019).

10.1.3. Journals

10.1.3.1. Member of Editorial Boards

Jasmin Blanchette and Stephan Merz served as guest editors for the special issue on *Interactive Theorem Proving* (ITP 2016) of the *Journal of Automated Reasoning* [16].

Dominique Méry is the Book Reviews Editor for *Formal Aspects of Computing*.

Thomas Sturm has been an editor of the *Journal of Symbolic Computation* (Elsevier) since 2003 and an editor of *Mathematics in Computer Science* (Springer) since 2013. He edited a special issue of the Journal of Symbolic Computation on *Symbolic Computation and Satisfiability Checking*.

Christoph Weidenbach is a member of the editorial board of the *Journal of Automated Reasoning* (JAR) (Springer). He also served as an editor on the special issue on *Automated Reasoning Systems* of JAR.

10.1.4. Invited Talks

Jasmin Blanchette gave a keynote talk at the *8th ACM SIGPLAN International Conference on Certified Programs and Proofs* (CPP 2019).

Dominique Méry was an invited speaker at the *16th International Colloquium on Theoretical Aspects of Computing* (ICTAC 2019).

Stephan Merz was invited to the meeting of IFIP Working Group 2.3 in October 2019 in Los Altos, California. He was an invited speaker at the meeting of the AFSEC group of GDR GPL in December 2019 in Toulouse.

Sorin Stratulat was an invited speaker at FROM 2019 (Working Formal Methods Symposium) in Timisoara, Romania, where he presented an efficient way to validate cyclic pre-proofs for first-order logic with inductive definitions.

Christoph Weidenbach was invited to give a lecture at the SAT/SMT/AR summer school 2019 in Lisbon, Portugal. He was invited to present at the computer science lecture series at the University of Bonn, Germany.

10.1.5. Leadership within the Scientific Community

Jasmin Blanchette served as a regular member of the CADE (*Conference on Automated Deduction*) Inc. Board of Trustees. He is also a regular member of the steering committees for the ITP (*Interactive Theorem Proving*) and TAP (*Tests and Proofs*) conference series.

Pascal Fontaine is an SMT-LIB manager, together with Clark Barrett (Stanford University) and Cesare Tinelli (University of Iowa). He was a regular member of the steering committee for the FroCoS (*Frontiers of Combining Systems*) conference series until September 2019, and he is a member of the steering committee for the SC-Square (*Satisfiability Checking and Symbolic Computation* workshop series. He was ex-officio member of the CADE (*Conference on Automated Deduction*) Inc. Board of Trustees until July 2019. He is an elected member of the steering committee for the SMT (*Satisfiability Modulo Theories*) workshop series.

Stephan Merz is a member of the IFIP Working Group 2.2 on *Formal Description of Programming Concepts* and a member of the steering committee of the workshop on Automated Verification of Critical Systems (AVoCS).

Thomas Sturm has been elected the chair of the steering committee of the ACM conference series *International Symposium on Symbolic and Algebraic Computation (ISSAC)*.

Christoph Weidenbach is the president of CADE and a member of the steering committee of IJCAR.

10.1.6. Scientific Expertise

Dominique Méry was a member of the committee for the thesis award of GDR GPL (*Génie de la Programmation et du Logiciel*) 2019.

Stephan Merz contributed an assessment of candidates for a professorship at TU Vienna, Austria.

Thomas Sturm served as an external expert on the appointment committee for a professorship in Computer Algebra at the University of Kassel, Germany. He is taking an advisory role as a "project partner" in the UK EPSRC Project EP/R019622/1 *Embedding Machine Learning within Quantifier Elimination Procedures*.

Christoph Weidenbach is a member of the selection committee of the Saarbrücken Graduate School in Computer Science.

10.1.7. Research Administration

Dominique Méry participated in the evaluation committees of HCERES for the LIASD (*Laboratoire d'informatique avancée de Saint-Denis*) and the doctoral school of École Polytechnique.

Stephan Merz is the delegate for scientific affairs at the Inria Nancy – Grand Est research center and a member of Inria's Evaluation Committee. In 2019, he was a member of the hiring committees of senior researchers at Inria and of junior researchers at Inria Rennes Bretagne Atlantique. He is also a member of the *bureau* of the computer science committee of the doctoral school IAEM Lorraine and of the executive committee of the project on citizens' trust in the digital world (DigiTrust) funded by *Lorraine Université d'Excellence*.

Uwe Waldmann is a member of the admissions committee for scholarships of the International Max Planck Research School for students aiming at a master's degree.

Christoph Weidenbach coordinates the scientific affairs at MPI-INF.

10.2. Teaching, Supervision, Thesis Committees

10.2.1. Teaching

Licence : Marie Duflot-Kremer, Algorithmique et Programmation 1, 60 HETD, L1, Université de Lorraine, France

Licence : Marie Duflot-Kremer, Algorithmique et Programmation 2, 10 HETD, L1, Université de Lorraine, France

Diplôme inter universitaire : Marie Duflot-Kremer, formation d'enseignants du secondaire à la spécialité NSI, 43 HETD, Université de Lorraine, France

Licence : Marie Duflot-Kremer, Introduction au Web, 20 HETD, L1, Université de Lorraine, France

Licence : Marie Duflot-Kremer, Accompagnement Algorithmique 1, 26 HETD, L1, Université de Lorraine, France

Licence : Marie Duflot-Kremer, Programmation Web, 5 HETD, L3, Université de Lorraine, France

Master: Marie Duflot-Kremer and Stephan Merz, Elements of model checking, 40 HETD, M2 Informatique and Master Erasmus Mundus DESEM, Université de Lorraine, France.

Master: Marie Duflot-Kremer and Stephan Merz, Algorithmes distribués, 24 HETD M1 informatique, Université de Lorraine, France.

Master: Pascal Fontaine, Réseaux, 50 HETD, M1 MIAGE, Université de Lorraine, France.

Master: Pascal Fontaine is the head of the MIAGE degree at Université de Lorraine.

Licence : Sorin Stratulat, Algorithmique des structures de contrôle, 45 HETD, L1 Informatique, ISFATES, Université de Lorraine, France.

Licence : Sorin Stratulat, Algorithmique des structures de données, 45 HETD, L1 Informatique, ISFATES, Université de Lorraine, France.

Master: Sorin Stratulat, Analyse et conception de logiciels, 105.5 HETD, M1 Informatique, Université de Lorraine, France.

Master: Sorin Stratulat, Génie Logiciel, 20 HETD, M2 Informatique, Université de Lorraine, France.

Master: Sophie Tourret, Concrete Semantics with Isabelle/HOL, 6 ECTS, Saarland University, Germany.

Master: Uwe Waldmann, Automated Reasoning, 9 ECTS, Saarland University, Germany.

Master: Christoph Weidenbach, Decision Procedures, 6 ECTS, Saarland University, Germany.

10.2.2. Supervision

PhD: Martin Bromberger, Decision Procedures for Linear Arithmetic. Saarland University, 10 December 2019. Supervised by Thomas Sturm and Christoph Weidenbach.

PhD: Nicolas Schnepf, Orchestration et vérification de fonctions de sécurité pour des environnements intelligents. Université de Lorraine, 30 September 2019. Supervised by Rémi Badonnel, Abdelkader Lahmadi, and Stephan Merz.

PhD: Marco Voigt, Decidable Fragments of First-Order Logic and of First-Order Linear Arithmetic with Uninterpreted Predicates. Saarland University, 31 July 2019. Supervised by Thomas Sturm and Christoph Weidenbach.

PhD in progress: Antoine Defourné, SMT for TLAPS, Université de Lorraine. Supervised by Jasmin Blanchette, Pascal Fontaine, and Stephan Merz, since March 2019.

PhD in progress: Margaux Duroeulx, SAT Techniques for Reliability Assessment, Université de Lorraine. Supervised by Nicolae Brînzei, Marie Duflot-Kremer, and Stephan Merz, since October 2016.

PhD in progress: Alberto Fiori, Clause Learning from Simple Models, Saarland University. Supervised by Christoph Weidenbach, since August 2018.

PhD in progress: Mathias Fleury, Formalization of Logical Calculi, Saarland University. Supervised by Christoph Weidenbach and Jasmin Blanchette, since September 2015.

PhD in progress: Alexis Grall, Integration of a modeling language and a language for programming distributed systems, Université de Lorraine. Supervised by Horatiu Cirstea and Dominique Méry, since October 2018.

PhD in progress: Daniel El Ouraoui, Higher-Order SMT, Université de Lorraine. Supervised by Jasmin Blanchette, Pascal Fontaine, and Stephan Merz, since November 2017.

PhD in progress: Pierre Lermusiaux, Analysis of properties of interactive critical systems, Université de Lorraine. Supervised by Horatiu Cirstea and Pierre-Etienne Moreau, since October 2017.

PhD in progress: Hans-Jörg Schurr, Higher-Order SMT, Université de Lorraine. Supervised by Jasmin Blanchette, Pascal Fontaine, and Stephan Merz, since November 2017.

10.2.3. Thesis Committees

Pascal Fontaine served as a reviewer in the thesis committees for Martin Bromberger (Universität des Saarlandes, Germany), Albin Coquereau (Université Paris-Saclay, France), Hakan Metin (Sorbonne Université, France), Simon Robillard (Chalmers University of Technology, Sweden) and Stefano Varotti (University of Trento, Italy).

Stephan Merz served as an examiner in the PhD committee of The Anh Pham (ENS Rennes) and as the president in the PhD committee of Renaud Vilmart (Univ. of Lorraine). He was a member of the PhD committee of Nicolas Schnepf as the thesis advisor.

Thomas Sturm served as a reviewer in the thesis committees for Martin Bromberger and Marco Voigt (Saarland University, Germany).

Christoph Weidenbach served as a reviewer in the thesis committees for Martin Bromberger and Marco Voigt (Saarland University, Germany).

10.3. Popularization

10.3.1. Responsibilities at Inria or Beyond

- Marie Duflot-Kremer is the deputy vice-president for outreach activities in the supervisory council of SIF (*Société Informatique de France*) and a member of the scientific committee of *Fondation Blaise Pascal*.

- Christoph Weidenbach is a member of the advisory committee for the German computer science competitions for pupils. Together with his colleagues at Saarland university he organizes the "Computer Science Research Days" for the most talented high-school students out of the competition every year. In addition, he organizes the final training for the German Informatics Olympiad team and coaches the Saarland University student teams for the ICPC.

10.3.2. Articles and Contents

Marie Duflot-Kremer is a member of the ERASMUS+ project PIAF (cf. section 9.3) with collleagues from Liège, Luxembourg and Saarbrücken. This projects aims at studying how computational thinking can be introduced in primary education (with kids rangng from 5 to 12 years old). The goal is first to agree on a shared reference document on computational thinking competences, and then to produce and test educational scenarios and didactical resources. So far this year the reference document has been designed (and a paper has been submitted recently to a conference). The work on the scenarios and the resources is ongoing.

10.3.3. Education

Marie Duflot-Kremer intervenes in the training of teachers:

- for primary school, half a day for training teachers on how to add a bit of computer science in their teaching;
- for secondary school, she took part (43 hours in 2019) in the advanced training of high school teachers who deliver a newly introduced computer science course (Numérique et Sciences Informatiques), and one day training for math teachers about unplugged activities;
- half a day of training for members of INSPE (Institut National Supérieur du Professorat et de l'Education), the people in charge of training teachers.

10.3.4. Interventions

Marie Duflot-Kremer takes part every year in several events, including local ones such as *Fête de la Science* (for which she trains 3rd year students to handle the workshops and gave this year a talk/show on "informagics"), Pint of Science, a talk for the local phase of the *Tournoi Français des Jeunes Mathématiciennes et Mathématiciens* and the local NSI (*Numérique et Sciences Informatiques*) day for secondary school teachers.

She is also invited for workshops and talks in events outside of the Nancy region, like national or regional days of APMEP (*Association des Professeurs de Mathématiques de l'Enseignement Public*) in Dijon and Grenoble, the SETT conference in Namur or the video game creation competition for kids in Manosque.

10.3.5. *Creation of Media or Tools for Science Outreach*

As a member of the national group *Informatique Sans Ordinateur* (ISO), Marie Duflot-Kremer takes part in creating new popularization activities and publishing online documentation to help people reproduce unplugged computer science activities. She also proposed and supervised a project of master students in cognitive sciences who created an escape game presenting various computer science concepts to kids from 13 years old. The documentation is available on her webpage. [0]

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[0] https://members.loria.fr/MDuflot/.

<p align="center" style="color:red">ACUMES Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- P. Goatin is member of the the scientific committee of the annual seminar CEA-GAMNI *"Numerical fluid-mechanics"*.
- P. Goatin was member of the scientific committee of the CIRM conference *"Crowds: models and control"*, Marseille (France), 2019.

9.1.1.2. Member of the Organizing Committees

- R. Duvigneau and A. Habbal are members of the Organizing Committee for the FGS French-German-Swiss Conference on Optimization, Nice, September 2019.
- A. Habbal co-organized the mini-symposium *Game Theory Approaches in Inverse Problems and Control*, French-German-Swiss Conference on Optimization, Nice, September 2019.
- P. Goatin co-organized the mini-symposium *"Numerical methods for traffic flow problems"*, WON-APDE 2019 - 6th Chilean Workshop on Numerical Analysis of Partial Differential Equations, Conception (Chile), 2019 (with L.M. Villada).
- P. Goatin was member of the organizing committee of the IPAM (UCLA) workshop *"Autonomous Vehicles"*, Los Angeles (USA), 2019.
- P. Goatin and E. Rossi co-organized the mini-symposium *"Non Local Balance Laws and their applications"*, ICIAM2019 - 9th International Congress on Industrial and Applied Mathematics, Valencia (Spain), 2019.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

A. Habbal was program committee member of The 3rd International Conference on Information Technology & Electrical Engineering - ITEE'19 El Jadida - Morocco, 2019. (http://www.ucd.ac.ma/ITEE19/)

9.1.2.2. Reviewer

- M. Binois reviewed for the following conferences: AISTATS 2020, NeurIPS 2019, and Winter Simulation Conference 2019.
- P. Goatin reviewed for the 11th IFAC Symposium on Nonlinear Control Systems.
- A. Habbal reviewed for the FGS French-German-Swiss Conference on Optimization, Nice, September 2019.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- P. Goatin is Managing Editor of *Networks and Heterogeneous Media*.
- P. Goatin is Guest Editor for the special issue "Mathematical Modeling with Measures" of *Mathematical and Bioscience Engineering*.

9.1.3.2. Reviewer - Reviewing Activities

- M. Binois is a reviewer for the following international journals: Aerospace Science and Technology, Annals of Applied Statistics, Journal of Aerospace Engineering, Computational Optimization and Applications, Computational Statistics and Data Analysis, Informs Computing, International Journal on Artificial Intelligence Tools, Integrating Materials and Manufacturing Innovation, Optimization and Engineering, The Computer Journal

- R. Duvigneau is reviewer for the following international journals: Computers & Fluids, International Journal for Numerical Methods in Fluids, Journal of Fluid & Structures, Computer Methods for Applied Mechanics Engineering, Computer Aided Geometric Design, Applied Mathematics & Mechanics, Engineering Optimization, Ocean Engineering

- P. Goatin reviewed for the following international journals: Acta Applicandae Mathematicae; Communications of the Korean Mathematical Society; ESAIM: Mathematical Modelling and Numerical Analysis; IEEE Transactions on Automatic Control; Nonlinear Differential Equations and Applications NoDEA; SIAM Journal on Mathematical Analysis; Transportmetrica A: Transport Science.

- J.-A. Désidéri has made reviews for: Mathematical Problems in Engineering; Numerical Algorithms; Algorithms; Operations Research and Decisions; Journal of Computational Design and Engineering; AIAA Journal.

- A. Habbal is a reviewer for the AMS Math Reviews, and for the following international journals: SIAM Scientific Computing ; Eur. Journal of Operation Research ; Systems & Control Letters.

9.1.4. Invited Talks

- M. Binois: Séminaire LJK-Probabilités & Statistique, Grenoble (France), April 2019.
  Invited talk: *"Heteroskedastic Gaussian Processes for Simulation Experiments"*.

- M. Binois: SRC 2019 - 2019 IMS/ASA Spring Research Conference, Blacksburg (VA, USA), May 2019.
  Invited talk: *"Sequential Learning of Active Subspaces"*.

- M. Binois: ICIAM 2019 - 9th International Congress on Industrial and Applied Mathematics, Valencia (Spain), July 2019. Mini-symposium: "Mathematical Optimization for Industrial and Scientific Applications".
  Invited talk: *"Bayesian Optimization and Dimension Reduction with Active Subspaces"*.

- P. Goatin: Program on "Data Assimilation: Theory, Algorithms, and Applications", Montreal (Canada), May 2019.
  Workshop "Data Assimilation: Methodology and Applications".
  Invited talk: *"Data driven traffic flow models"*.

- P. Goatin: Workshop "Nonlinear Hyperbolic Problems: modeling, analysis, and numerics", Mathematisches Forschungsinstitut, Oberwolfach (Germany), May 2019.
  Invited talk: *"Regularity results for the solutions of a non-local model of traffic flow"*.

- P. Goatin: "30 Years of SIMAI: status and perspectives of applied and industrial mathematics in Italy and in Europe", Milano (Italy), July 2019.
  Invited talk: *"Traffic management by macroscopic models: present and future challenges"*.

- P. Goatin: ICIAM 2019 - 9th International Congress on Industrial and Applied Mathematics, Valencia (Spain), July 2019. Mini-symposium: "Modelling and calibration in pedestrian dynamics: analysis and numerics".
  Invited talk: *"Non-local macroscopic models for crowd motion"*.

- P. Goatin: Workshop "Resilient Control of Infrastructure Networks", Politecnico di Torino (Italy), September 2019.
  Invited talk: *"Macroscopic traffic flow models on road networks"*.

- A. Habbal: ICIAM 2019 - 9th International Congress on Industrial and Applied Mathematics, Valencia (Spain), July 2019. Mini-symposium: "Geometric inverse problems and parameter estimation".
  Invited talk: *"Fractional Flow Reserve in a stenosed coronary artery"*.

- A. Habbal: MYRPAM 2019 - First Maghrebian Young Researchers in Pure and Applied Mathematics, Hammamet (Tunisia), December 2019. <u>Plenary talk</u>: *"Game Strategies to Solve and Model PDE-constrained Problems"*.

9.1.5. Scientific Expertise

- P. Goatin is member of the advisory board of DISMA Excellence Project of Politecnico di Torino (2018-2022).
- A. Habbal was member of the evaluation panel of the SiRIC CURAMUS Project (Integrated Research in Cancerology) https://curamus-cancer.fr/

9.1.6. Research Administration

- P. Goatin is member of the board of the Doctoral School of Fundamental and Applied Sciences (ED SFA) of Université Côte D'Azur.
- P. Goatin was vice-president of the local selection committee for Inria Sophia Antipolis competitive selection of young graduate scientists (CRCN) (2019).
- R. Duvigneau is member of CSD ("Comité Suivi Doctoral) at Inria Sophia Antipolis Méditerranée.
- R. Duvigneau is head of the Scientific Steering Committee of Platforms (cluster and immersive space) at Inria Sophia Antipolis Méditerranée.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: M. Binois, Design of experiments, 6 hrs, M2, Ecole Nationale Supérieure des Mines de Saint-Étienne, Saint-Étienne.

Master: R. Duvigneau, Advanced Optimization, 40 hrs, M2, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis.

Master: R. Duvigneau & A. Habbal, Numerical Methods for Partial Differential Equations, 66 hrs, M1, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis.

Master: J.-A. Désidéri, Multidisciplinary Optimization, 22.5 hrs, joint *Institut Supérieur de l'Aéronautique et de l'Espace* (ISAE Supaéro, "Complex Systems") and M2 (Mathematics), Toulouse.

Master: A. Habbal, Optimization, 66 hrs, M1, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis.

Master: A. Habbal, Stochastic Processes, 24 hrs, M1, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis.

Master: A. Habbal, Combinatorial optimization, 15 hrs, M1, Mohammed VI Polytechnic University, Morocco.

Licence (L3): A. Habbal, Implement and Experiment PSO, 48 hrs, L3 Semester Project, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis.

9.2.2. Supervision

PhD in progress: S. Pezzano, *Isogeometric analysis with moving grids*, Univ. Nice Sophia-Antipolis. Supervisor: R. Duvigneau.

PhD defended in September 2019: Nicolas Laurent-Brouty (ENPC), *Macroscopic traffic flow models for pollution estimation and control*, September 2016. Supervisor: P. Goatin.

PhD defended in October 2019: Nikodem Dymski (Maria Curie Sklodowska University & Université de Nice Sophia Antipolis), *Conservation laws in the modeling of collective phenomena*, October 2016. Supervisors: P. Goatin and M.D. Rosini (UMCS).

PhD defended in December 2019: Felisia Angela Chiarello (Université de Nice Sophia Antipolis), *Conservation laws with non- local flux*, October 2016. Supervisor: P. Goatin.

PhD in progress: S. Chabbar, *Modeling and simulation of tumor growth ; the case of prostate cancer*, Jan 2019, Supervisors: A. Habbal, Rajae Aboulaich (LERMA, EMI, Rabat), A. Ratnani (UM6P, Benguerir, Morocco).

PhD in progress: Marwa Ouni, *Solving inverses problems in fluid mechanics with game strategies*, October 2016, Supervisors: A. Habbal, Moez Kallel (LAMSIN, ENIT, Tunis).

PhD defended in December 2019: Rabeb Chamekh, *Game strategies to solve some inverse problems*, Jan 2015, Supervisors: A. Habbal, Moez Kallel (LAMSIN, ENIT, Tunis).

PhD defended in December 2019: Keltoum Chahour, *Modeling coronary blood flow using a non newtonian fluid model : fractional flow reserve estimation*, Nov 2015, Supervisors: A. Habbal, Rajae Aboulaich (LERMA, EMI, Rabat).

9.2.3. Juries

- R. Duvigneau was member of the committee of David Gaudrie's PhD thesis *"High-dimensional multi-objective Gaussian optimization"*, Ecole des Mines de St Etienne, October 28th, 2019.

- P. Goatin was reviewer of D. Inzunza's PhD thesis *"Implicit-explicit methods for nonlinear and nonlocal convection-diffusion-reaction problems"*, Universidad de Concepción, December 2019.

9.3. Popularization

9.3.1. Articles and contents

- "On the optimal shape of a wing", R. Duvigneau, Interstices, September 2019.

- A.S. Ackleh, R.M. Colombo, P. Goatin, S. Hille and A. Muntean, *Mathematical modeling with measures*, Nieuw Archief voor Wiskunde, Part 20 n. 3, September 2019.

9.3.2. Interventions

- R. Duvigneau gave three talks on "Modeling and simulation: when engineering becomes numerical" at Lycée Jules Ferry, Cannes, March 2019.

- P. Goatin gave the talk *"Le trafic routier en équations"* in Biot (Alpes Maritimes, France) on January 31, 2019, as part of the conference cycle "Science pour Tous 06".

- A. Habbal contributed to Cafe'In talks on *"Tumoral Angiogenesis"*, June 2019.

BONUS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- E-G. Talbi (Conference chair): Intl. Conf. on Multiple Objective Programming and Goal Programming (MOPGP'2019), Marrakech, Morocco, Oct 28-31, 2019.
- N. Melab (Workshop co-chair): Intl. Workshop on the Synergy of Parallel Computing, Optimization and Simulation (HPCS/PaCOS'2019), Dublin, Ireland, Jul 15-19, 2019.
- E-G. Talbi (Steering committee Chair): Intl. Conf. on Optimization and Learning (OLA'2019), Bangkok, Thailand, Jan 29-31, 2019.
- E-G. Talbi (Steering committee): 9th IEEE Workshop Parallel Distributed Computing and Optimization (IPDPS/PDCO'2019), Rio de Janeiro, Brazil, May 20-24, 2019.
- O. Abdelkafi, B. Derbel and A. Liefooghe (workshop co-chairs): 2nd Intl. Workshop on Computational Intelligence for Massive Optimization (CIMO 2019), Lille, France, July 2019 (with H. Aguirre, K. Tanaka and S. Verel).
- B. Derbel (workshop co-chair): Decomposition Techniques in Evolutionary Optimization (DTEO), workshop at GECCO 2019, Prague, Czech Republic, July 2019 (with K. Li, X. Li, S. Zapotecas, and Q. Zhang).
- A. Liefooghe (workshop co-chair): Landscape-aware heuristic search (LAHS), workshop at GECCO 2019, Prague, Czech Republic, July 2019 (with N. Veerapen, S. Verel and G. Ochoa).
- B. Derbel (special session co-chair): Advances in Decomposition-based Evolutionary Multi-objective Optimization (ADEMO), special session at CEC 2019, Wellington, New Zealand, June 2019 (with S. Zapotecas, K. Li and Q. Zhang).
- A. Liefooghe (track chair): GECCO 2019: Genetic and Evolutionary Computation Conference, Evolutionary multi-objective Optimization (EMO) track (Prague, Czech Republic, 2019).
- N. Melab: Chair of 4 simulation and HPC-related seminars at Université de Lille: The Arctic University of Norway (HPC Group, UiT), IBM, DSI (Supercomputing division) Ulille, Inria Lille), Oct-Dec 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- A. Liefooghe (program co-chair): EvoCOP 2019: 19th European Conference on Evolutionary Computation in Combinatorial Optimisation (Leipzig, Germany, 2019).

10.1.2.2. Member of the Conference Program Committees

- IEEE Congress on Evolutionary Computation (CEC), Wellington, New Zealand, Jun 10-13, 2019.
- IEEE Workshop on Understanding of Evolutionary Optimization Behavior, Wellington, New Zealand, Jun 10-13, 2019.
- The ACM Genetic and Evolutionary Computation Conference (GECCO), Prague, Czech Republic, July 13-17, 2019.
- 13th Metaheuristics International Conference (MIC), Cartagena, Colombia, July 28-31, 2019.

- The 2018 International Conference on High Performance Computing & Simulation (HPCS), Dublin, Ireland, July 15–19, 2019.
- IEEE Intl. Workshop on Parallel/Distributed Computing and Optimization (IPDPS/PDCO), Rio de Janeiro, Brazil, May 20-24, 2019.
- EvoCOP'2019, 19th European Conference on Evolutionary Computation in Combinatorial Optimization, Leipzig, Germany, Apr 24-26, 2019.
- Int. Conf. on Multiple objective Programming and Goal Programming (MOPGP'2019), Marrakech, Morocco, Oct 28-31, 2019.
- Intl. Conf. on Optimization and Learning (OLA'2019), Bangkok, Thailand, Jan 29-31, 2019.
- Int. Conf. on Computing (ICC 2019), Springer's CCIS Book Series, Riyadh, Saudi Arabia, Oct 22-24, 2019.
- 15th Workshop on Foundations of Genetic Algorithms (FOGA), Potsdam, Germany, 2019.
- 10th Intl. Conference on Evolutionary Multi-criterion Optimization (EMO), Michigan, USA, 2019.
- ICANN'2019 28th Intl. Conf. on Artificial Neural Networks, Munich, Germany, Sept 2019.
- Metaheuristics Intl. Conference (MIC'2019), Cartagena, Colombia, July 2019.
- Intl. Conference on Industrial Engineering and Systems Management (IESM 2019), Shanghai, China, Sept 2019.
- 8th Intl. Conf. on Modeling, Simulation and Applied Optimizaiton (ICMSAO'2019), Bahrin, April 2019.
- Colloque sur l'Optimisation et les Systèmes d'information (COSI), Tizi-Ouzou, Algérie, Jun 24-26, 2019.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- N. Melab: Associate Editor of ACM Computing Surveys (IF: 6.131) since 2019.
- N. Melab: Guest and Managing Editor (in collaboration with P. Korosec, J. Gmys and I. Chakroun) of a special on *Synergy between Parallel Computing, Optimization and Simulation* in *Journal of Computational Science (JoCS)*, 2019.
- E-G. Talbi: Guest Editor (with L. Amodeo and F. Yalaoui) of a special issue on *Metaheuristics in Industry 4.0* in *Swarm and evolutionary computation*, 2019.
- E-G. Talbi. Guest Editor (with H. Masri) on *Multiple criteria decision making models for economic developement* in *JMCDA Journal of Multi-Criteria Decision Analysis*, 2019.
- B. Derbel: Associate Editor, IEEE Transactions on Systems, Man and Cybernetics: Systems (IEEE).

10.1.3.2. Reviewer - Reviewing Activities

- Transactions on Evolutionary Computation (IEEE TEC, IF: 8.508), IEEE.
- ACM Computing Surveys (IF: 6.131), ACM.
- Swarm and Evolutionary Computation (SWEVO, IF: 6.330), Elsevier.
- Future Generation Computer Systems (FGCS, IF: 5.7), Elsevier.
- European Journal of Operational Research [15], Elsevier.
- IEEE Transactions on Parallel and Distributed Systems (IEEE TPDS, IF: 3.4), IEEE.
- Journal of Computational Science (JoCS, IF: 2.5), Elsevier.
- Annals of Operations Research (IF: 2.284), Springer.
- Journal of Heuristics (JoH, IF: 1.392), Springer.
- Intl. Journal on Artificial Intelligence Tools (IJAIT, IF: 0.8), World Scientific.

10.1.4. Invited Talks

- E-G. Talbi. Learning-based metaheuristics, Distinguished seminar, University of Michigan, USA, Jan 2019.
- E-G. Talbi. Machine learning and optimization: inseparable disciplines, Keynote speaker, KST'2019 11th Intl. Conf. on Knowledge and Smart Technology, Phuket, Thailand, Jan 2019.
- E-G. Talbi. How machine learning can help metaheuristics?, Invited seminar, American University of Sharjah, Emirates Arabs United, Feb 2019.
- E-G. Talbi. Machine learning into optimization, Invited seminar, University of Elche, Spain, Nov 2019.

10.1.5. Leadership within the Scientific Community

- N. Melab: scientific leader of Grid'5000 (https://www.grid5000.fr) at Lille, since 2004.
- E-G. Talbi: Co-president of the working group "META: Metaheuristics - Theory and applications", GDR RO and GDR MACS.
- E-G. Talbi: Co-Chair of the IEEE Task Force on Cloud Computing within the IEEE Computational Intelligence Society.
- A. Liefooghe: co-secretary of the association "Artificial Evolution" (EA).

10.1.6. Scientific Expertise

- N. Melab: Member of the advisory committee for the IT and maganement engineer training at Faculté Polytechnique de Mons, BELGIUM.

10.1.7. Research Administration

- N. Melab: Member of the Scientific Board (Bureau Scientfique du Centre) for the Inria Lille - Nord Europe research center.
- N. Melab: Member of the steering committee of "Maison de la Simulation" at Université de Lille.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- International Master lecture: N. Melab, Supercomputing, 24h ETD, M2, Université de Lille, FRANCE.
- Master lecture: N. Melab, Operations Research, 72h ETD, M1, Université de Lille, FRANCE.
- Master leading: N. Melab, Co-head (with B. Merlet) of the international Master 2 of High-perforpmance Computing and Simulation, Université de Lille, FRANCE.
- Licence: A. Liefooghe, Algorithmic and Data structure, 36h ETD, L2, Université de Lille, FRANCE.
- Licence: A. Liefooghe, Algorithmic for Operations Research, 36h ETD, L3, Université de Lille, FRANCE.
- Master: A. Liefooghe, Databases, 30h ETD, M1, Université de Lille, FRANCE.
- Master: A. Liefooghe, Advanced Object-oriented Programming, 53h ETD, M2, Université de Lille, FRANCE.
- Master: A. Liefooghe, Combinatorial Optimization, 10h ETD, M2, Université de Lille, FRANCE
- Master: A. Liefooghe, Multi-criteria Decision Aid and Optimization, 25h ETD, M2, Université de Lille, FRANCE.
- Master leading: A. Liefooghe, superviser of the Master 2 MIAGE IPI-NT.
- Master: Bilel Derbel, Combinatorial Optimization, 35h, M2, Université de Lille, FRANCE.

- Master: Bilel Derbel, Grid Computing, 16h, M2, Université de Lille, FRANCE.
- Master: Bilel Derbel, Parallel and Distributed Programming, 35h, M1, Université de Lille, FRANCE.
- Master: Bilel Derbel, Algorithms and Applications, 28h, M1, Université de Lille, FRANCE.
- Engineering school: El-Ghazali Talbi, Advanced optimization, 36h, Polytech'Lille, Université de Lille, FRANCE.
- Engineering school: El-Ghazali Talbi, Data mining, 36h, Polytech'Lille, Université de Lille, FRANCE.
- Engineering school: El-Ghazali Talbi, Operations research, 60h, Polytech'Lille, Université de Lille, FRANCE.
- Engineering school: El-Ghazali Talbi, Graphs, 25h, Polytech'Lille, Université de Lille, FRANCE.
- Master leading: B. Derbel, head of the Master MIAGE, Université de Lille, FRANCE.
- Licence: O. Abdelkafi, Computer Science, 46.5 ETD, L1, Université de Lille, FRANCE.
- Licence: O. Abdelkafi, Web Technologies, 36 ETD, L1, Université de Lille, FRANCE.
- Licence: O. Abdelkafi, Unix system introduction, 6 ETD, L2, Université de Lille, FRANCE.
- Licence: O. Abdelkafi, Web Technologies, 24 ETD, L2 S3H, Université de Lille, FRANCE.
- Licence: O. Abdelkafi, object-oriented programming, 36 ETD, L2, Université de Lille, FRANCE.
- Licence: O. Abdelkafi, Relational Databases, 36h ETD, L3, Université de Lille, FRANCE.
- Licence: O. Abdelkafi, Algorithmic for Operations Research, 36h ETD, L3, Université de Lille, FRANCE.
- Master leading: O. Abdelkafi, superviser of the Master MIAGE alternance, Université de Lille, FRANCE.

10.2.2. Supervision

- PhD: Z. Garroussi, Multi-objective matheuristics for demand-side management in smart grids, To be defended on December 21th, 2019. PhD supervised by El-Ghazali Talbi and Rachid Ellaia (EMI, MOROCCO).
- PhD in progress: J. Pelamatti, Multi-disciplinary design of aerospace vehicles, Jan 2017, El-Ghazali Talbi.
- PhD in progress: Ali Hebbal, Deep Gaussian processes and Bayesian optimization for non-stationary, multi-objective and multi-fidelity problems, Oct 2017, El-Ghazali Talbi and Nouredine Melab.
- PhD in progress (cotutelle): Maxime Gobert, Parallel multi-objective global optimization with applications to several simulation-based exploration parameter, Oct 2018, Nouredine Melab (Université de Lille) and Daniel Tuyttens (Université de Mons, BELGIUM).
- PhD in progress (cotutelle): Guillaume Briffoteaux, Bayesian Neural Networks-assisted multi-objective evolutionary algorithms: Application to the Tuberculosis Transmission Control, Oct 2017, Nouredine Melab (Université de Lille) and Daniel Tuyttens (Université de Mons, BELGIUM).
- PhD in progress: Jeremy Sadet, Surrogate-based optimization in automotive brake design, El-Ghazali Talbi (Université de Lille), Thierry Tison (Université Polytechnique Hauts-de-France, FRANCE).
- PhD in progress: Geoffrey Pruvost, Machine learning and decomposition techniques for large-scale multi-objective optimization, Oct 2018, Bilel Derbel and Arnaud Liefooghe.
- PhD in progress: Nicolas Berveglieri, Meta-models and machine learning for massive expensive optimization, Oct 2018, Bilel Derbel and Arnaud Liefooghe.
- PhD in progress (cotutelle): Alexandre Jesus, Algorithm selection in multi-objective optimization, Bilel Derbel and Arnaud Liefooghe (Université de Lille), Luís Paquete (University of Coimbra, PORTUGAL).

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- N. Melab: Chargé de Mission of High Performance Computing and Simulation at Université de Lille, since 2010.

10.3.2. Internal action

- A. Liefooghe: 30 minutes de sciences, Inria Lille-Nord Europe, Lille, France, June 2019.

- O. Abdelkafi: Intervention auprès des inspecteurs d'académie, Inria Lille-Nord Europe, Lille, France, Mars 2019.

<p align="center" style="color:red">CAGE Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

- Ugo Boscain, Jean-Michel Coron, and Mario Sigalotti organized the workshop "Quantum day: analysis and control", December 16, Paris
- Ugo Boscain and Emmanuel Trélat organized the minisymposium "Degenerate diffusion processes and their control" at Equadiff 2019, July 8-12, Leiden, The Netherlands
- Ugo Boscain organized (with Aleksey Kostenko and Konstantin Pankrashkin) the workshop "Self-adjoint Extensions in New Settings", October 6–12, Mathematisches Forschungsinstitut Oberwolfach, Germany
- Barbara Gris organized the minisymposium "Analyse des formes anatomiques" at Smai, May 13–17, Guidel Plages (Morbihan)
- Barbara Gris organized the workshop "Shape analysis in biology", November 21–22, Paris
- Emmanuel Trélat organized (with Roland Herzog) the workshop "New Trends in PDE-constrained Optimization", October 14–18, RICAM, Linz, Austria

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

Emmanuel Trélat was member of the Conference Program Committee of the SIAM Conference on Control and its Applications (CT 2019), Chengdu, China.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Ugo Boscain is Associate editor of SIAM Journal of Control and Optimization
- Ugo Boscain is Managing editor of Journal of Dynamical and Control Systems
- Jean-Michel Coron is Editor-in-chief of Comptes Rendus Mathématique
- Jean-Michel Coron is Member of the editorial board of Journal of Evolution Equations
- Jean-Michel Coron is Member of the editorial board of Asymptotic Analysis
- Jean-Michel Coron is Member of the editorial board of ESAIM : Control, Optimisation and Calculus of Variations
- Jean-Michel Coron is Member of the editorial board of Applied Mathematics Research Express
- Jean-Michel Coron is Member of the editorial board of Advances in Differential Equations
- Jean-Michel Coron is Member of the editorial board of Math. Control Signals Systems
- Jean-Michel Coron is Member of the editorial board of Annales de l'IHP, Analyse non linéaire
- Mario Sigalotti is Associate editor of ESAIM : Control, Optimisation and Calculus of Variations
- Mario Sigalotti is Associate editor of Journal on Dynamical and Control Systems
- Emmanuel Trélat is Editor-in-chief of ESAIM : Control, Optimisation and Calculus of Variations
- Emmanuel Trélat is Associate editor of SIAM Review
- Emmanuel Trélat is Associate editor of Syst. Cont. Letters

- Emmanuel Trélat is Associate editor of J. Dynam. Cont. Syst.
- Emmanuel Trélat is Associate editor of Bollettino dell'Unione Matematica Italiana
- Emmanuel Trélat is Associate editor of ESAIM Math. Modelling Num. Analysis
- Emmanuel Trélat is Editor of BCAM Springer Briefs
- Emmanuel Trélat is Associate editor of J. Optim. Theory Appl.
- Emmanuel Trélat is Associate editor of Math. Control Related fields

9.1.4. Invited Talks

- Ugo Boscain was invited speaker at the School and Workshop "Random Matrix Theory and Point Processes", Trieste, Italy, September.
- Barbara Gris was invited speaker at "Young researchers Imaging Seminars", IHP, Paris, February.
- Barbara Gris was invited speaker at GDR MAMOVI, Tours, February.
- Barbara Gris was invited speaker at "Information Geometry", Toulouse, October.
- Emmanuel Trélat was plenary speaker at "Equadiff 2019", Leiden, The Netherlands, July.
- Emmanuel Trélat was invited speaker at "Colloquium du Laboratoire de Mathématiques d'Avignon", Mars.
- Emmanuel Trélat was invited speaker at "DEA 2019", Krakow, Poland, September.
- Emmanuel Trélat was invited speaker at "Quantization in Symplectic Geometry", Cologne, Germany, July.
- Emmanuel Trélat was invited speaker at "Mathematical Models and Methods in Earth and Space Science", Rome, Italy, March.
- Emmanuel Trélat was invited speaker at "Sub-Riemannian Geometry and beyond", Jyväskylä, Finland, February.

9.1.5. Leadership within the Scientific Community

Emmanuel Trélat was director of the Fondation Sciences Mathématiques de Paris (FSMP) until June.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Ugo Boscain thought "Controllability of Closed Quantum Systems" to PhD students at the first QUSCO School, Saarbrucken, Germany.
- Ugo Boscain thought "Automatic Control" (with Mazyar Mirrahimi) at Ecole Polytechnique
- Ugo Boscain thought "MODAL of applied mathematics. Contrôle de modèles dynamiques" at Ecole Polytechnique
- Ugo Boscain thought "Control theory and applications in Quantum Mechanics" to PhD students at SISSA, Trieste, Italy
- Mario Sigalotti thought "Geometric Control Theory" to PhD students at "29th Jyväskylä Summer School", Jyväskylä, Finland
- Mario Sigalotti thought "Équations d'évolution, stabilité et contrôle" to M1 students at Sorbonne Université
- Emmanuel Trélat thought "Control in finite and infinite dimension" to M2 students at Sorbonne Université

9.2.2. Supervision

PhD: Nicolas Augier, "Contrôle adiabatique des systèmes quantiques", September 2019, supervisors: Ugo Boscain, Mario Sigalotti.

PhD: Amaury Hayat, " Stabilisation de systèmes hyperboliques non-linéaires en dimension un d'espace", May 2019, supervisors: Jean-Michel Coron and Sébastien Boyaval

PhD: Mathieu Kohli, "On the notion of geodesic curvature in sub-Riemannian geometry", September 2019, supervisors: Davide Barilari, Ugo Boscain.

PhD: Jakub Orłowski, "Adaptive control of time-delay systems to counteract pathological brain oscillations", December 2019, supervisors: Antoine Chaillet, and Mario Sigalotti.

PhD: Shengquan Xiang, "Stabilisation rapide d'équations de Burgers et de Korteweg-de Vrie", June 2019, supervisor: Jean-Michel Coron.

PhD: Christophe Zhang, "Contrôle et stabilisation internes de systèmes hyperboliques 1-D", October 2019, supervisor: Jean-Michel Coron.

PhD in progress: Gontran Lance, started in September 2018, supervisors: Emmanuel Trélat and Enrique Zuazua.

PhD in progress: Cyril Letrouit, "Équation des ondes sous-riemanniennes", started in September 2019, supervisor Emmanuel Trélat.

PhD in progress: Emilio Molina, "Application of optimal control techniques to natural resources management", started in September 2018, supervisors: Pierre Martinon, Héctor Ramírez, and Mario Sigalotti.

PhD in progress: Eugenio Pozzoli, "Adiabatic Control of Open Quantum Systems", started in September 2018, supervisors: Ugo Boscain and Mario Sigalotti.

PhD in progress: Rémi Robin, "Orbit spaces of Lie groups and applications to quantum control", started in September 2019, supervisors: Ugo Boscain and Mario Sigalotti.

9.2.3. *Juries*

- Ugo Boscain and Mario Sigalotti were supervisors and members of the jury of the PhD thesis of Nicolas Augier, Université Paris Saclay
- Ugo Boscain was co-supervisor and member of the jury of the PhD thesis of Mathieu Kohli, Université Paris Saclay
- Jean-Michel Coron was supervisor and member of the jury of the PhD thesis of Christophe Zhang, Sorbonne Université.
- Jean-Michel Coron was supervisor and member of the jury of the PhD thesis of Shengquan Xiang, Sorbonne Université.
- Mario Sigalotti was opponent of the PhD thesis of Eero Hakavuori, Jyväskylä University, Finland
- Mario Sigalotti was president and member of the jury of the PhD thesis of Gerardo Cardona, École des Mines, Paris.
- Emmanuel Trélat was referee and member of the jury of the HDR of Patrick Martinez, Université de Toulouse.
- Emmanuel Trélat was member of the jury of the HDR of Max Cerf, Sorbonne Université.
- Emmanuel Trélat was referee and member of the jury of the PhD thesis of Mathieu Granzotto, Université de Lorraine.
- Emmanuel Trélat was member of the jury of the PhD thesis of Christophe Zhang, Sorbonne Université.
- Emmanuel Trélat was president and member of the jury of the PhD thesis of Armand Koenig, Université de Nice.
- Emmanuel Trélat was member of the jury of the PhD thesis of Shengquan Xiang, Sorbonne Université.
- Emmanuel Trélat was member of the jury of the PhD thesis of Nicolas Hegoburu, Université de Bordeaux.

9.3. Popularization

9.3.1. *Internal or external Inria responsibilities*

Emmanuel Trélat is member of the Comité d'Honneur du Comité International des Jeux Mathématiques

9.3.2. Articles and contents

- The work [7] by Pierre Martinon has been popularized in the article "Athlétisme, affaire Dreyfus, itinéraire des éboueurs... Comment les maths irriguent notre monde" by Soline Roy, appeared in *Le Figaro*, 1/1/2019.

- Emmanuel Trélat has been interviewed, as director of the Fondation Sciences Mathématiques de Paris, in *Le Figaro*, 2/1/2019.

9.3.3. Interventions

- Emmanuel Trélat gave a cycle of lectures at "Sciences et Société", Nancy

- Emmanuel Trélat gave a lecture at Bibliothèque Nationale de France (BNF) (https://vimeo.com/313123529)

- Emmanuel Trélat gave a general public lecture at "Mois de l'optimisation", Limoges

- Emmanuel Trélat gave a general public lecture in Padua, Italy

<p style="text-align:center">**CAGIRE Project-Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Member of the Organizing Committees
- Organizer and scientific chair of the mini-symposium "Numerical method for multi-scale fluid problems" at ICIAM 2019 [JJ].

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards
- Visualization of Mechanical Processes [PB]
- Advisory Board of International Journal of Heat and Fluid Flow [RM]
- Advisory Board of Flow, Turbulence and Combustion [RM]

10.1.2.2. Reviewer - Reviewing Activities

During 2019, the team members reviewed papers for the following journals:
- AIAA Journal [PB, RM]
- Computer & Fluids [RM]
- Int. J. Heat Fluid Flow [RM]
- Journal of Computational Physics [JJ]
- J. Hydr. Res. [RM]
- Physics of Fluids [FM]
- Phys. Rev. Fluids [RM]
- SIAM Journal on Scientific Computing [VP]

10.1.3. Invited Talks
- J. Jung [19]
- R. Manceau [20]

10.1.4. Leadership within the Scientific Community
- Rémi Manceau co-organizes the activities of the Special Interest Group 15 (Turbulence modelling) of ERCOFTAC (European Research Community on Flow, Turbulence and Combustion) as a member of the Steering Committee. The main activity of this group in 2019 was the organization of a workshop in Ljubljana, Slovenia.
- Rémi Manceau coordinates the ANR Project MONACO_2025, a 4-year project started in 2018. The partners are: the institute PPrime, PSA Group and EDF.

10.1.5. Scientific Expertise
- Evaluation of one Ecos Sud project [PB]

10.1.6. Research Administration
- Co-responsible for the organisation of the LMAP seminar of Mathematics and their Applications [JJ].
- Member of the LMAP council [JJ, PB].
- Member of the IPRA research federation scientific council [RM].
- Vincent Perrier is a member of the CUMI-R.
- Vincent Perrier is a member of the CDT, in charge of the evaluation of software projects at the Inria Bordeaux center.
- Vincent Perrier is an elected member of the Inria evaluation committee, and member of the board. [0]
- Vincent Perrier is a member of the CT3-Num committee of Pau University, in charge of managing the computing resources and projects at Pau University.

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[0]https://www.inria.fr/en/inria-evaluation-committee

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : [JJ], Descriptive statistical, 24h, L1 - MIASHS, Université de Pau et des Pays de l'Adour, Pau, France.

Licence : [JJ], Scientific computing, 40.5h, L2 - Informatic, Université de Pau et des Pays de l'Adour, Pau, France.

Licence : [JJ], Numerical analysis for vectorial problems, 33.75h, L2 - Mathematics, Université de Pau et des Pays de l'Adour, Pau, France.

Master : [JJ], Data analysis, 68h25, M1 - GP, Université de Pau et des Pays de l'Adour, Pau, France.

Master : [JJ], Tools for scientific computing, 48h75, M1 - MMS-MSID, Université de Pau et des Pays de l'Adour, Pau, France.

Master : [JJ], Finite volume methods for hyperbolic systems, 15h, Master ANEDP, ENS, Casablanca, Maroc.

Master: [VP], Numerical analysis of PDE 1, Master MMS, Pau.

Master : "Turbulence modelling" (in English), 27h30, M2 - International Master program Turbulence, Université de Poitiers/Ecole centrale de Lille, France. [RM]

Eng. 3 : "Industrial codes for CFD" (in English), 12h30, 3rd year of engineering school (M2), ENSMA, Poitiers, France. [RM]

Eng. 3 : "Advanced physics–Turbulence modelling for CFD", 16h, 3rd year of engineering school (M2), ENSGTI, France. [RM]

10.2.2. Supervision

- PhD in progress : Puneeth Bikkanahally Muni Reddy, "Modelling turbulent flows in natural convection regimes using hybrid RANS-LES approaches, UPPA, October 2018, Rémi Manceau.
- PhD in progress : Gaëtan Mangeon, "Advanced modelling of heat transfer for industrial configurations with or without accounting of the solid wall", UPPA, February 2017, Rémi Manceau.
- PhD in progress : Vladimir Duffal, "Hybrid RANS/LES modelling for unsteady loadings in turbulent flows", UPPA, November 2017, Rémi Manceau.
- PhD in progress : Hassan Al Afailal: "3D simulation of non-reactive internal aerodynamics of spark-ignition engines using an hybrid RANS/LES method", September 2017, Rémi Manceau.
- PhD in progress Saad Jameel : "Turbulence modelling in the mixed and natural convection regimes in the context of automotive applications", UPPA, February 2017, Rémi Manceau.
- PhD in progress : Gustave Sporschill, "Amélioration des modèles pour la turbulence. Applications à la prédiction des écoulements aérodynamiques", UPPA, May 2018, Rémi Manceau.

10.2.3. Juries

The participation in the following thesis juries is noted ("referee" in a French doctoral thesis jury is more or less equivalent to an external opponent in an Anglo-Saxon like PhD jury):

- Thomas Kaiser, "Impact of flow rotation on flame dynamics and hydrodynamic stability", University of Toulouse (France), 31 January 2019. Supervisor: T. Poinsot [PB, Referee].
- Joao Rodrigo Andrade, "Spectral analysis of the turbulent energy cascade and the development of a novel nonlinear subgrid-scale model for large-eddy simulation", Universidade Federale de Uberlândia (Brazil) and University of Lille (France), 27 March 2019. Supervisors: A. S. Neto, G. Mompean and R.L. Thompson [RM, Referee]
- Adithya Ramanathan Krishnan, "Explicit algebraic subfilter scale modeling for DES-like methods and extension to variable density flows", University of Aix-Marseille 3 April 2019. Supervisor: P. Sagaut [RM, Referee]
- Benjamin Lorendeau, "Amélioration des performances via un parallélisme multi-niveaux sur un code CFD en maillages non structurés", University of Bordeaux (France), 16 December 2019. Supervisor: E. Jeannot [PB, Referee]

CARDAMOM Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

- M. Ricchiuto co-organized the workshop Hywec2 on the hydrodynamics of wave energy converters. The workshop has been organized in the framework of the work packages 3 and 5 of the Excellence Cluster Sysnum as one of two twin events devoted to marine renewable energies organized in Bilbao (the VI Marine Energy Conference, June 25th) and Bordeaux. The event is also supported by the Oceanera-net Midwest and the Fondation Del Duca. Its main goals have been to focus on PDE and numerical modelling techniques, with attention on advanced and recent approaches, and to give an overview of examples of industrial techniques and applications with several European industrial actors. For more info refer to the web https://hywec2.sciencesconf.org.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

Mathieu Colin is a member of the scientific committee of the JEF day's.

9.1.2.2. Member of the Conference Program Committees

M. Ricchiuto has co-organized the mini-symposium "Some modern questions in the simulation of advection dominated problems", MS FT-1-10 at the ICIAM conference in Valencia

9.1.2.3. Member of the Editorial Boards

- Mathieu Colin is a member of the board of the journal Applications and Applied Mathematics: An International Journal (AAM)
- M. Ricchiuto is a member of the editorial boards of Computers & Fluids (Elsevier) and of Water Waves (Springer)

9.1.2.4. Reviewer - Reviewing Activities

We reviewed papers for top international journals in the main scientific themes of the team : Nonlinearity, Water Waves, Analysis and PDE, Comm. Cont. Math., Journal of Scientific Computing, Open Physics, Computational and applied mathematics, Journal of Fluid Mechanics.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- License: Nicolas Barral, TD d'Analyse Numérique, 24h, L3, ENSEIRB-MATMÉCA, France
- Master : Nicolas Barral, TD C++, 48h, M1, ENSEIRB-MATMÉCA, France
- Master : Nicolas Barral, Techniques de maillage, 36h, M2, ENSEIRB-MATMÉCA et Université de Bordeaux, France
- License: Héloïse Beaugendre, Encadrement de projets sur la modélisation de la portance, 20h, L3, ENSEIRB-MATMÉCA, France
- Master : Héloïse Beaugendre, TD C++, 48h, M1, ENSEIRB-MATMÉCA, France
- Master : Héloïse Beaugendre, Calcul Haute Performance (OpenMP-MPI), 40h, M1, ENSEIRB-MATMÉCA et Université de Bordeaux, France

- Master : Héloïse Beaugendre, Responsable de filière de 3ème année, 15h, M2, ENSEIRB-MATMÉCA, France
- Master : Héloïse Beaugendre, Calcul parallèle (MPI), 39h, M2, ENSEIRB-MATMÉCA, France
- Master : Héloïse Beaugendre, Encadrement de projets de la filière Calcul Haute Performance, 6h, M2, ENSEIRB-MATMÉCA, France
- Master : Héloïse Beaugendre, Encadrement de projets sur la modélisation de la pyrolyse, 20h, M1, ENSEIRB-MATMÉCA, France
- Master : Héloïse Beaugendre , Projet fin d'études, 4h, M2, ENSEIRB-MATMÉCA, FRANCE
- Master : Mathieu Colin : Integration, M1, 54h, ENSEIRB-MATMÉCA, FRANCE
- Master : Mathieu Colin : Fortran 90, M1, 44h, ENSEIRB-MATMÉCA, FRANCE
- Master : Mathieu Colin : PDE, M1, 30h, University of Bordeaux, FRANCE
- Master : Mathieu Colin : Analysis, L1, 47h, ENSEIRB-MATMÉCA, FRANCE
- Master : Mathieu Colin : projet professionnel and internship responsibility : 15 h, ENSEIRB-MATMÉCA, FRANCE
- Master : Mathieu Colin : Encadrement de projets TER, 20h, ENSEIRB-MATMÉCA, FRANCE
- Master : Mathieu Colin : responsable relation entreprise formation en alternance ENSEIRB-MATMECA (30h)
- Master : Mathieu Colin : suivi d'apprenti en entreprise (28h)
- Master : Mario Ricchiuto, Multiphysics Course, 21h cours magistrale, M2, ENSEIRB-MATMÉCA, FRANCE

9.2.2. *Supervision*

PhD : Umberto Bosi, A unified spectral/hp element depth-integrated Boussinesq model for nonlinear wave-floating body interaction, U. Bordeaux, defended in June 2019, supervised by M. Ricchiuto (see [1])

PhD in progress : E. Solai, Multi-fidelity modeling of an immersive battery cooling system for electric vehicles, started in November 2018, co-supervised by H. Beaugendre and P.M. Congedo

PhD in progres: B. Constant, high order immersed methods for turbulent flows, started in September 2019, supervised by H. Beaugendre

PhD in progress : S. Michel, shallow water simulations with immersed higher order residual methods on adaptive meshes, started in November 2018, supervised by M. Ricchiuto

PhD in progress : G. Bellezza, multi scale modelling for self-healing composite materials, started in February 2019, supervised by M. Ricchiuto and G. Vignoles (LCTS)

PhD in progress : M. Ciallella, bridging shock fitting and embedded methods to handle shock waves in hyperbolic systems, started in October 2019, supervised by M. Ricchiuto and R. Paciorri (U. Roma La Sapienza)

PhD in progress : A. Cauquis, high order shock capturing methods for tsunami simulations, started in November 2019, supervised by M. Ricchiuto and P. Heinrich (CEA)

9.2.3. *Juries*

Héloïse Beaugendre has contributed to the following theses defense:

- Iñigo Bidaguren, BCAM, Bilboa, Spain in June 2019 (as examiner)
- Pierre Trontin HDR, Toulouse University in September 2019 (as examiner)
- Quentin Carmouze, Côte D'Azur University in November 2019 (as reviewer)

Maria Kazolea has contributed to the following theses defense:

- Umberto Bosi PhD, University of Bordeaux, April 2019 (as examiner)

Mario Ricchiuto has participated to the following juries:

- A. Menasria, PhD ENSAM Paritech, in March 2019 (as president)
- Julien Carlier, PhD U. Paris-Saclay, in December 2019 (as reviewer)

CELESTE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. Member of the Organizing Committees

Semaine SEME - Orsay 14/01-18/01-2019, https://www.math.u-psud.fr/seme2019/index.php. G. Stoltz was part of the organizing and scientific committees. C. Keribin was part of the scientific committee.

8.1.2. Scientific Events: Selection

8.1.2.1. Member of the Conference Program Committees

- S. Arlot was member of the steering committee of the 4th Junior Conference on Data Science and Engineering at Paris-Saclay (Sept. 2019), CentraleSupélec, Paris-Saclay campus, Gif-sur-Yvette.
- C. Keribin is member of steering committee of the the bi-montly Seminar of probability and statistics (Laboratoire de mathématiques d'Orsay)
- C. Giraud is co-organiser (with E. Kuhn) of the conference StatMathAppli at Fréjus (1-6 september 2019)
- C. Giraud is local member of scientific committee of the Institut Pascal (year around program)

8.1.2.2. Reviewer

We performed many reviews for various international conferences.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

S. Arlot is associate editor of Annales de l'Institut Henri Poincaré B – Probability and Statistics.

8.1.3.2. Reviewer - Reviewing Activities

We performed many reviews for various international journals.

8.1.4. Invited Talks

- S. Arlot, Changepoint Workshop, Nov. 2019, Institut des Systèmes Complexes, Paris.
- S. Arlot, Thematic week "Data and Analytics for Short-Term Operations", Feb. 2019, Isaac Newton Institute for Mathematical Science, Cambridge, UK.
- C. Keribin, Some asymptotic properties of model selection criteria in the latent block model. 12th Scientific meeting CLADAG 2019, Cassino (Italie), September 11 – 13, 2019
- C. Giraud, Community detection and sequential learning, IOPS 2019, Bordeaux, June 19-21, 2019
- C. Giraud, Sequential learning in random graph, Genova, May 2019.
- P. Pamphile, Maintenance cost forecasting for a feet of vehicles, IMDR, Paris, April 2019

8.1.5. Research Administration

S. Arlot coordinates the math-AI (mathematics for artificial intelligence) program of the Labex Mathématique Hadamard and is member of the executive comittee of Fondation Mathématique Jacques Hadamard (FMJH).
S. Arlot is member of the steering committee of the Paris-Saclay Center for Data Science.
S. Arlot is member of the prefiguration group of the Computer Science Graduate School of University Paris-Saclay.
P. Massart is Director of the Fondation Mathématique Jacques Hadamard (FMJH).

C. Giraud has coordinated the math-SV (mathematics for life science) program of the Labex Mathématique Hadamard and is member of the executive comittee of Fondation Mathématique Jacques Hadamard (FMJH).

C. Giraud is member of the scientific committee of the Labex IRMIA (Strasbourg)

C. Giraud is local member of the scientific committee of the Pascal Institute (Saclay)

C. Giraud is member of the prefiguration group of the Mathematics Graduate School of University Paris-Saclay.

C. Giraud is member of the steering committee of the Mathematics Modelisation and Biodiversity chair.

C. Giraud is in charge of the whole master program in Mathematics of Paris Saclay.

C. Giraud is in charge of the Statistics and Machine Learning track in the master program in Mathematics of Paris Saclay.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Licence: S. Arlot, Probability and Statistics, 68h, L2, Université Paris-Sud

Master: S. Arlot, Statistical learning and resampling, 30h, M2, Université Paris-Sud

Master: S. Arlot, Probability and Statistics M2 seminar, 30h, M2, Université Paris-Sud

Master: S. Arlot, Preparation to French mathematics agrégation (statistics), 50h, M2, Université Paris-Sud

Master: C. Giraud, High-Dimensional Statistics, 45h, M2, Université Paris-Sud

Master: C. Giraud, Theoretical Guidelines in Data Analysis, 45h, M2, Université Paris-Sud

Master: C. Giraud, Lecture Group, 25h, M2, Université Paris-Sud

Master: C. Giraud, Mathematics for AI, 75h, M1, Université Paris-Sud

8.2.2. Supervision

PhD in progress: Guillaume Maillard, Aggregated cross-validation, started Sept. 2016, co-advised by S. Arlot and M. Lerasle

PhD in progress: El Mehdi Saad, Interactions between statistical and computational aspects in machine learning, started Sept. 2019, co-advised by S. Arlot and G. Blanchard

PhD in progress: Tuan-Binh Nguyen, Efficient Statistical Testing for High-Dimensional Models, co-advised by S. Arlot and B. Thirion

PhD in progress: Rémi Coulaud, Forecast of dwell time during train parking at station, started Oct. 2019, co-advised by G. Stoltz and C. Keribin, Cifre with SNCF

PhD in progress: Olivier Coudray, Fatigue aided-design, started Nov. 2019, co-advised by C. Keribin and P. Pamphile, Cifre with PSA

PhD: Solène Thépaut, Problèmes de clustering liés à la synchronie en écologie, Université Paris Saclay, Dec. 2019, C. Giraud.

PhD: Théophile Olivier, Le role de la diversité et des perturbations environnementales sur la stabilité temporelle des communautés animales en milieu naturel, Museum National Histoire Naturelle, Sep. 2019, co-advised by E. Porcher and C. Giraud.

PhD in progress: Yann Issartel, Non-parametric estimation in random networks, started Sep. 2017, C. Giraud.

PhD in progress: Solenne Gaucher, Sequential learning in random networks, started Sep. 2018, C. Giraud.

8.2.3. Juries

S. Arlot: referee for the HdR of Servane Gey, Université Paris Descartes, 07/02/2019.
S. Arlot: member of the PhD committee of Solène Thepaut, Université Paris-Sud, 06/12/2019.

C. Giraud: many HDR and PhD juries as referee or member of the committee

8.3. Popularization

8.3.1. Interventions

- Public exhibitions: S. Arlot is member of the steering committee of a general-audience exhibition about artificial intelligence, that is co-organized by Fermat Science (Toulouse), Institut Henri Poincaré (IHP, Paris) and Maison des Mathématiques et de l'Informatique (MMI, Lyon).

<p align="center" style="color:red">COMMANDS Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Member of the Conference Program Committees

- F. Bonnans: PGMO Days, EDF'Lab Palaiseau,Dec. 3-4, 2019.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- F. Bonnans: Associate Editor: Math. & Appl. / Annals of the Academy of Romanian Scientists (AOSR)

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master :

F. Bonnans: *Numerical analysis of partial differential equations arising in finance and stochastic control*, 18h, M2, Ecole Polytechnique and U. Paris 6, France.

F. Bonnans: *Optimal control of ordinary differential equations*, 15h, M2, Optimization master (U. Paris-Saclay) and Ensta, France.

A. Kröner : Optimal control of partial differential equations, 20h, M2, Optimization master (U. Paris-Saclay), France.

L. Pfeiffer: *Optimal control of ordinary differential equations*, 18h, M2, Optimization master (U. Paris-Saclay) and Ensta, France.

L. Pfeiffer: *Optimisation continue et combinatoire*, 17h, Ensta, France.

9.2.2. Supervision

Finished PhD : A. Le Rhun, Optimal and robust control of hybrid vehicles. Started September 2016 (IFPEN fellowship), finished December 2019, F. Bonnans and P. Martinon.

PhD in progress : G. Bonnet, Efficient schemes for the Hamilton-Jacobi-Bellman equation. Started Oct. 2018. F. Bonnans and J.-M. Mirebeau, LMO, U. Orsay.

PhD in progress : P. Lavigne, Mathematical study of economic equilibria for renewable energy sources. Started Oct. 2018. F. Bonnans and L. Pfeiffer.

9.3. Popularization

- F. Bonnans: codirection of a joint Allistene-Ancre commission (contribution to the national strategy for research), Numerics and Energy committee (2017-2019).
- F. Bonnans: Dimitrie Pompeiu Prize Committee (Academy of Romanian Scientists).

<h1 style="text-align:center; color:red">CQFD Project-Team</h1>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Member of the Organizing Committees

Pierrick Legrand is co-organisor of the international conference EA 2019 in Mulhouse https://ea2019.inria.fr/.

9.1.2. Chair of Conference Program Committees

F. Dufour is the chair of the Program Committee of the SIAM Conference on Control and Its Applications (CT19) in Pittsburgh, USA, 2019.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

P. Del Moral is an associate editor for the journal Stochastic Analysis and Applications since 2001.

P. Del Moral is an associate editor for the journal Annals of Applied Probability since 2018.

F. Dufour is corresponding editor of the SIAM Journal of Control and Optimization since 2018.

F. Dufour is associate editor of the journal Applied Mathematics & Optimization (AMO) since 2018.

F. Dufour is associate editor of the journal Stochastics: An International Journal of Probability and Stochastic Processes since 2018.

F. Dufour is the representative of the SIAM activity group in control and system theory for the journal SIAM News since 2014.

J. Saracco is an associate editor of the journal Case Studies in Business, Industry and Government Statistics (CSBIGS) since 2006.

9.1.3.2. Reviewer - Reviewing Activities

All the members of CQFD are regular reviewers for several international journals and conferences in applied probability, statistics and operations research.

9.1.4. Scientific Expertise

J. Saracco is elected member of the council of the Société Française de Statistique (SFdS, French Statistical Society). A. Genadot is member of the scientific council of the mathematical institute of Bordeaux.

P. Del Moral is a member of the Data Science Foundation of the American Institute of Mathematical Sciences.

9.1.5. Research Administration

J. Saracco is deputy director of IMB (Institut de Mathématiques de Bordeaux, UMR CNRS 5251) since 2015.

M. Chavent is member of the national evaluation committee of Inria.

M. Chavent and Pierrick Legrand are members of the council of the Institut de Mathématique de Bordeaux.

F. Dufour has been the coordinator for the Inria evaluation of the theme "Stochastic Approaches"

9.2. Teaching - Supervision - Juries

9.2.1. *Teaching*

Licence : P. Legrand, Algèbre, 129h, L1, Université de Bordeaux, France.

Licence : P. Legrand, Espaces Euclidiens, 46,5h, L2, Université de Bordeaux, France.

Licence : P. Legrand, Informatique pour les mathématiques, 30h, L2, Université de Bordeaux, France.

DU : P. Legrand, Evolution Artificielle, Big data, 8h, DU, Bordeaux INP, France.

Licence : A. Genadot, Bases en Probabilités, 18h, L1, Université de Bordeaux, France.

Licence : A. Genadot, Projet Professionnel de l'étudiant, 8h, L1, Université de Bordeaux, France.

Licence : A. Genadot, Probabilité, 30h, L2, Université de Bordeaux, France.

Licence : A. Genadot, Techniques d'Enquêtes, 10h, L2, Université de Bordeaux, France.

Licence : A. Genadot, Modélisation Statistiques, 16.5h, L3, Université de Bordeaux, France.

Licence : A. Genadot, Préparation Stage, 15h, L3, Université de Bordeaux, France.

Licence : A. Genadot, TER, 5h, L3, Université de Bordeaux, France.

Licence : A. Genadot, Processus, 16.5h, L3, Université de Bordeaux, France.

Licence : A. Genadot, Statistiques, 20h, L3, Bordeaux INP, France.

Master : A. Genadot, Savoirs Mathématiques, 81h, M1, Université de Bordeaux et ESPE, France.

Master : A. Genadot, Martingales, 29h, M1, Université de Bordeaux, France.

Licence : F. Dufour, Probabilités et statistiques, 70h, first year of école ENSEIRB-MATMECA, Institut Polytechnique de Bordeaux, France.

Master : F. Dufour, Approche probabiliste et methode de Monte Carlo, 24h, third year of école ENSEIRB-MATMECA, Institut Polytechnique de Bordeaux, France.

9.2.2. *Supervision*

PhD: Hadrien Lorenzo, "Supervised analysis of high dimensional multi block data", supervised by Jérôme Saracco (CQFD) and Rodolphe Thebaut (Inserm), thesis defense: 27/11/19 in Bordeaux.

PhD in progress: Alex Mourer, "Variables importance in clustering", CIFRE Safran Aircraft Engines, supervised by Jérôme Lacaille (Safran), Madalina Olteanou (SAMM, Paris1), Alex Mourer (doctorant), Marie Chavent (CQFD).

PhD in progress: de Nathanaël Randriamihamison, "Contiguity Constrained Hierarchical Agglomerative Clustering for Hi-C data analysis", supervised by Nathalie Vialaneix (MIAT, INRA Toulouse), Pierre Neuvial (IMT, CNRS), Marie Chavent (CQFD) .

PhD in progress: Alexandre Conanec, "Modulation et optimisation statistique de données multi-tableaux : modélisation des facteurs de variations dans la gestion des compromis entre différents jeux de données", supervised by Marie Chavent(CQFD), Jérôme Saracco (CQFD), Marie-Pierre Ellies (INRA).

PhD in progress: Loic Labache , "Création d'un atlas cérébral évolutif de régions fonctionnelles définies à partir d'une cohorte de 297 sujets ayant effectués 20 tâches cognitives en IRMf ", supervised by Jérôme Saracco (CQFD), Marc Joliot (CEA).

PhD in progress: Tiffany Cherchi, "Automated optimal fleet management policy for airborne equipment", Montpellier University, since 2017, supervised by B. De Saporta and F. Dufour.

PhD in progress: Bastien Berthelot, "Algorithmes de traitement du signal pour l'extraction de signatures robustes sur des bio-signaux", CIFRE THALES, supervised by P. Legrand.

PhD in progress: Jimmy Bondu, "Classication de trajectoires d'objets par apprentissage.", CIFRE THALES, supervised by P. Legrand.

PhD in progress: Camille Palmier , "Nouvelles approches de fusion multi-capteurs par filtrage particulaire pour le recalage de navigation inertielle par corrélation de cartes", CIFRE, supervised by P. Del Moral, Dann Laneuville (NavalGroup) and Karim Dahia (ONERA)

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

Alexandre Genadot is a member of the Commission des emplois de recherche Inria BSO. Pierrick Legrand is a member of the commission consultative section 26 of the IMB.

<h1 style="text-align:center; color:red">DEFI Project-Team</h1>

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. General Chair, Scientific Chair

- P.M Congedo is the Chair of the CWI-Inria workshop at CWI in Amsterdam on September 19, 20 2019.
- P.M. Congedo is the Chair of UQOP2020 Conference, organized in Paris on March 18-21, 2019.

8.1.2. Member of the Organizing Committees

- L. Chesnel co-organizes the Journée de rentrée (2019) of the Centre de Mathématiques Appliquées of École Polytechnique.
- L. Chesnel co-organizes the seminar of the Centre de Mathématiques Appliquées of École Polytechnique.
- L. Chesnel co-organizes the seminar of the Inria teams Defi-M3DISIM-Poems.
- M. Bonazzoli organizes the working group of Defi team.
- J.R. Li is organizer of Ecole d'ete d'excellence for Chinese Master's students funded by French Embassy in China, 07/2019.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

- G. Allaire is member of the editorial boards of
    - Book series "Mathématiques et Applications" of SMAI and Springer,
    - ESAIM/COCV, Structural and Multidisciplinary Optimization,
    - Discrete and Continuous Dynamical Systems Series B,
    - Computational and Applied Mathematics,
    - Mathematical Models and Methods in Applied Sciences (M3AS),
    - Annali dell'Universita di Ferrara,
    - OGST (Oil and Gas Science and Technology),
    - Journal de l'Ecole Polytechnique - Mathématiques,
    - Journal of Optimization Theory and Applications.
- P.M. Congedo is Editor of Mathematics and Computers in Simulation, MATCOM (Elsevier).
- H. Haddar is member of the editorial boards of
    - Inverse Problems
    - SIAM Journal on Scientific Computing
    - SIAM Journal of Mathematical Analysis

8.1.3.2. Reviewer - Reviewing Activities

We reviewed papers for top international journals in the main scientific themes of the team.

8.1.4. Invited Talks

- G. Allaire
  - SIAM Geosciences, Houston, March 11-14, 2019.
  - DCAMM seminar, DTU, Copenhagen, April 5, 2019.
  - WCSMO, Beijing, May 20-24, 2019.
  - Mathematical Design of New Materials, Cambridge, June 3-14, 2019.
  - Chalmers Colloquium, Sweden, August 26-30, 2019.
  - Sim-AM, Pavia, September 11-13, 2019.
  - Shape Optimization and Isoperimetric and Functional Inequalities, Levico Terme, September 23-27, 2019.
  - Computational modelling of Complex Materials across the Scales, Glasgow, October 1-4, 2019.
  - New trends in PDE constrained optimization, Linz, October 15-18, 2019.
- M. Bonazzoli
  - Seminar at POEMS lab, ENSTA-ParisTech, Palaiseau, France.
  - ENUMATH 2019, European Numerical Mathematics and Advanced Applications Conference, Egmond aan Zee, Netherlands.
  - Parallel Solution Methods for Systems Arising from PDEs, Marseille, France (Plenary invited talk).
- L. Chesnel
  - Waves conference, Vienna, August 2019.
  - Applied Inverse Problems conference, Grenoble, 2019.
- H. Haddar
  - Applied Inverse Problems conference, Grenoble, July 2019
  - International Conference on Antenna Measurements & Applications, Bali, October 2019
  - New Trends in Analysis and Probability, Sousse, September 2019
  - Workshop in the memory of A. Lechleiter, Bremen, May 2019
  - La journée des rencontres DEFI-MEDISIM-POEMS, December, 2019
- P.M. Congedo
  - Workshop "Numerical simulation of hypersonic flows, July 8, 2019.
  - Seminar at ONERA, Meudon, November 29, 2019.

8.1.5. Leadership within the Scientific Community

- G. Allaire is a board member of Institut Henri Poincaré (IHP). He is the chairman of the scientific council of IFPEN (French Petroleum Institute and New Energies). He is the chairman of the scientific council of AMIES (Agency for Interaction in Mathematics with Business and Society).

8.1.6. Scientific Expertise

- G. Allaire is a member of the "comité national" CNRS, section 41 (mathematics).
- G. Allaire is a member of the scientific board of the Gaspard Monge program on optimization (PGMO) at the Jacques Hadamard Mathematical Foundation.
- J.R. Li is Member of the SIAM Committee on Programs and Conferences 2017-2019.
- J.R. Li is Member Elu of Inria Commission d'Evaluation, 2015-2019.
- M. Bonazzoli was a member of the Evaluation committee for the 2020 call of Inria Associate Teams programme.

- H. Haddar was the president of the evaluation committee for mathemùatical laboratries at the Universities of Sfax and Sousse (Tunisia)

8.1.7. Research Administration

- J.R. Li is correspondant International for Centre de Mathematiques Appliquees, Ecole Polytechnique, 2018-present.
- J.R. Li is responsable for the Ecole Polytechnique part of the French-Vietnam Master Program in Applied Mathematics, 2016-present.
- M. Bonazzoli is the International partnerships Scientific Correspondent for Inria Saclay.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- Master: Grégoire Allaire, Approximation Numérique et Optimisation, for students in the second year of Ecole Polytechnique curriculum: 8 lessons of 1h30.
- Master: Grégoire Allaire, Transport and diffusion, for students in the third year of Ecole Polytechnique curriculum. 9 lessons of 2h jointly with F. Golse.
- Master: Houssem Haddar, Waves and imaging: Concepts, Theory and Applications, Master M2 "mathematical modeling": 9 lessons of 3h.
- Master: Houssem Haddar, Inverse scattering problems, Master M2, ENIT, 10 lessons of 3h.
- Master: Lucas Chesnel, Elementary tools of analysis for partial differential equations, for students in the first year of Ensta ParisTech curriculum, 25 equivalent TD hours.
- Master: Lucas Chesnel, Numerical approximation and optimisation, for students in the second year of Ecole Polytechnique curriculum: 2 TDs of 4h + one project.
- Master: Lucas Chesnel, Modal Modélisation mathématique par la démarche expérimentale, for students in the second year of Ecole Polytechnique curriculum: 5 TDs of 2h.
- Master: Grégoire Allaire, Optimal design of structures, for students in the third year of Ecole Polytechnique curriculum. 9 lessons of 1h30.
- Master: Grégoire Allaire, Theoretical and numerical analysis of hyperbolic systems of conservation laws, Master M2 "mathematical modeling", 8 lessons of 3h.
- Master: Jing Rebecca Li, Lecturer of course Mathematical and numerical foundations of modeling and simulation using partial differential equations French-Vietnam Master in Applied Mathematics, University of Science, Ho Chi Minh City, 9/2019. 2 weeks.
- Master: P.M. Congedo, Numerical methods in Fluid Mechanics, ENSTA ParisTech, 12 h.
- Master: P.M. Congedo, Numerical methods for Hyperbolic Problems, von Karman Institute for Fluid Dynamics, 12 h.
- Doctorat: Houssem Haddar, Inverse problems, Executive Education, Ecole Polytechnique, 9h

8.2.2. Supervision

- PhD: K. Napal, On the use of sampling methods and spectral signatures for the resolution of inverse scattering problems (defended, December 2019), L. Audibert, L. Chesnel and H. Haddar.
- PhD: F. Feppon (defended, December 2019) sur l'optimisation topologique de systèmes couplés fluide-solide-thermique, G. Allaire and Ch. Dapogny.
- PhD: M. Kchaw, Higher order homogenization tensors for DMRI modeling (defended July 2019), H. Haddar and M. Moakher
- PhD: B. Charfi, Identification of the singular support of generalized impedance boundary conditions (defended September 2019), S. Chaabane and H. Haddar.

- PhD: F. Sanson, Estimation du risque humain lié à la retombée d'objets spatiaux sur Terre (defended in September 2019), P.M. Congedo, O. Le Maitre.

- PhD: N. Razaaly, Rare Event Estimation and Robust Optimization Methods with Applications to ORC Turbine Cascade (defended in July 2019), P.M. Congedo.

- PhD: G. Gori, Non-ideal compressible-fluid dynamics: developing a combined perspective on modeling, numerics and experiments (defended in January 2019), A. Guardone, P.M. Congedo.

- PhD: J. Carlier, Schémas aux résidus distribués et méthodes à propagation des ondes pour la simulation d'écoulements compressibles diphasiques avec transfert de chaleur et de masse (defended in December 2019), M. Pelanti, P.M. Congedo.

- Ph.D. in progress: S. Houbar sur la cavitation dans le fluide caloporteur induite par les mouvements des assemblages d'un réacteur (CEA, to be defended in 2020). G. Allaire and G. Campioni.

- Ph.D. in progress: M. Boissier, Optimisation couplée de la topologie des formes et de la trajectoire de lasage en fabrication additive (to be defended in 2020). G. Allaire and Ch. Tournier.

- L. Rakotondrainibe sur l'optimisation des liaisons enre pièces dans les système mécaniques (Renault, to be defended in 2020). G. Allaire.

- J. Desai sur l'optimisation topologique de structures au comportement non-linéaire avec des méthodes de déformation de maillage (IRT SystemX, to be defended in 2021). G. Allaire and F. Jouve,

- PhD in progress: H. Girardon, Non destructive testing of PWR tubes using eddy current rotating coils, to be defended in 2021, H. Haddar and L. Audibert

- PhD in progress: M. Rihani, Maxwell's equations in presence of metamaterials (to be defended in 2021), A.-S. Bonnet-BenDhia and L. Chesnel.

- PhD in progress: Chengran Fang, Enabling cortical cell-specific sensitivity on clinical multi-shell diffusion MRI microstructure measurements. (to be defended in 2022) Jing Rebecca Li and Demian Wassermann

- PhD in progress: Nouha Jenhani, Differential sampling methods for defect imaging in periodic layers. (to be defended in 2022) Houssem Haddar and Mourad Bellasoued

- PhD in progress: Amal Labidi, Inverse problems for wave equation with magnetic potential. (to be defended in 2022) Houssem Haddar and Mourad Bellasoued

- PhD in progress: Marwa Mansouri, Inside outside duality for artificial backgrounds. (to be defended in 2022) Houssem Haddar, Lucas Chesnel and Moez Khenissi

- PhD in progress: M. Bihr sur la fabrication additive et l'optimisation topologique de structures (to be defended in 2022) G. Allaire and B. Bogosel.

- PhD in progress: R. Delvaux sur les algorithmes de couplage à convergence super-linéaire entre neutronique, thermohydraulique et thermique (to be defended in 2022) G. Allaire and C. Patricot,.

- PhD in progress: A. Touiti sur l'optimisation de l'anisotropie pour des structures issues de la fabrication additive (to be defended in 2022) G. Allaire and F. Jouve.

- PhD in progress: M. Rivier, optimization under uncertainty through a Bounding-Box concept (to be defended in May 2020), P.M. Congedo.

- PhD in progress: Joao Reis, Advanced methods for stochastic elliptic PDEs (to be defended in October 2020), P.M. Congedo, O. Le Maitre.

- PhD in progress: Anabel Del Val, Advanced bayesian methods for aerospace applications (to be defended in October 2020), P.M. Congedo, O. Le Maitre, O. Chazot, T. Magin.

- PhD in progress: P. Novello, Deep learning for reentry atmosperic flows (to be defended in November 2021), P.M. Congedo, D. Lugato, G. Poette.

- PhD in progress: E. Solai, Virtual Prototyping of the EVE expander (to be defended in October 2021), P.M. Congedo, H. Beaugendre.

- PhD in progress: N. Leoni, Bayesian inference of model error in imprecise models (to be defended in February 2022), P.M. Congedo, O. Le Maitre, M.G. Rodio.

8.3. Popularization

- M. Bonazzoli and L. Chesnel made a presentation in the context of the Fête de la science 2019 to several groups of young students (from 10 to 17 years old).
- M. Bonazzoli was representative for SMAI at the Métiers des Maths stand at the 20th Salon Culture et Jeux Mathématiques.

8.3.1. Internal or external Inria responsibilities

- P.M. Congedo is Deputy Coordinator of "Maths/Engineering" Program of the Labex Mathématiques Hadamard.
- J.R. Li is Member Elu of Inria Commission d'Evaluation, 2015-2019.
- M. Bonazzoli is the International partnerships Scientific Correspondent for Inria Saclay.

8.3.2. Internal action

- M. Bonazzoli, H. Haddar and J.R. Li monitored an internship at Defi team for 6 middle school students (one afternoon).

DISCO Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events: Organisation

7.1.1.1. General Chair, Scientific Chair

Islam Boussaada is co-leading the national research group *Tools for analysis and synthesis of infinite-dimensional systems* (GT OSYDI) of the CNRS/GDR MACS (https://gdr-macs.cnrs.fr/groupe-de-travail/osydi).

7.1.1.2. Member of the Organizing Committees

Catherine Bonnet was member of the organizing committee of SIAM CT19, Chendu China, July 2019.

7.1.2. Scientific Events: Selection

- Catherine Bonnet was Associate Editor for the 2019 American Control Conference, Philadelphia, USA and the 2020 American Control Conference, Denver, USA.
- Catherine Bonnet and Islam Boussaada were Associate Editor for the Joint IFAC Conference 7th Symposium on System Structure and Control (SSSC 2019) and 15th IFAC Workshop on Delay Systems, Sinaia, Roumania, Sept 2019.
- Frédéric Mazenc was Associate Editor for the conferences 2019 American Control Conference, Philadelphia, USA and for the European Control Conference 2020, St Petersburg.
- Giorgio Valmorbida was an Associate Editor for the 2019 American Control Conference, Philadelphia, USA and the 2020 American Control Conference, Denver, USA. He was also Associate editor for the 58th Conference in Decision and Control, Nice, France. Silviu Niculescu is the IEEE CSS (Control System Society) representative for the series of IEEE Conferences (nternational Conference on System Theory, Control and Computing,): http://icstcc2019.cs.upt.ro

7.1.2.1. Member of the Conference Program Committees

- Catherine Bonnet and Giorgio Valmorbida are members of the scientific committee of the GDRI (International Research Group funded by CNRS) SpaDisco since 2017.
- Giorgio Valmorbida is a member of the steering committee of the GDRI (International Research Group funded by CNRS) SpaDisco since 2017.
- Catherine Bonnet and Islam Boussaada were members of the International Program Committee of the Joint IFAC Conference 7th Symposium on System Structure and Control (SSSC 2019) and 15th IFAC Workshop on Delay Systems, Sinaia, Roumania, Sept 2019.

7.1.2.2. Reviewer

The team reviewed papers for several international conferences including IEEE Conference on Decision and Control, IEEE American Control Conference, European Control Conference ...

7.1.3. Journal

7.1.3.1. Member of the Editorial Boards

Frédéric Mazenc is member of the editorial boards of the following journals:

- Asian Journal of Control : Editor;
- IEEE Transactions on Automatic Control, Associate Editor;
- European Journal of Control, Associate Editor;
- Journal of Control and Decision, Associate Editor;
- IEEE Control Systems Letters, Associate Editor.

Silviu Niculescu is the Founding Editor and the Editor-in-Chief (since its creation in 2012) of the Springer (hard-cover) book series Advances in Delays and Dynamics ADD@S https://www.springer.com/series/11914.

He is Associate Editor at European Journal of Control (since 2011).

7.1.3.2. Reviewer - Reviewing Activities

The team reviewed papers for several journals including SIAM Journal on Control and Optimization, Automatica, IEEE Transactions on Automatic Control, Systems and Control Letters ...

7.1.4. Invited Talks

Giorgio Valmorbida was invited to give a talk in the workshop Scientific Computing Across Scales: Extreme Events and Criticality in Fluid Mechanics in April 15 - 18, 2019, at The Fields Institute 15-17, Toronto, CA.

Frédéric Mazenc was invited to give a talk in the CINVESTAV, IPN: Model Reduction and Predictor Control, in August 2, 2019, Mexico City, Mexico.

7.1.5. Leadership within the Scientific Community

Catherine Bonnet is a member of the IFAC Technical Committees on *Distributed Parameter Systems* and on *Biological and Medical Systems*. She is a member of the management committee of the COST Action FRACTAL (2016-2020).

Silviu Niculescu is the chair of the IFAC TC 2.2 "Linear Control Systems" since 2017 (including 300-350 researchers throught the world). The TC is coordinating 4 "Working Groups" (WG) including the WG on "Time-Delay Systems".

7.1.6. Scientific Expertise

Since September 2015, Catherine Bonnet is a member of the Evaluation Committee of Inria and since 2019 of the Bureau of the Evaluation Committee of Inria.

Since September 2016, Islam Boussaada is a member of the Scientific Council of IPSA (Engineering School in Aeronautic and Aerospace approved by CTI).

Since September 2018, Islam Boussaada is a member of the Development Council of Sup'Biotech (Engineering School in Biotechnologies approved by CTI).

Since 2014, Frédéric Mazenc is an expert for the FNRS (Belgium). His mission consists in evaluating research projects funded by this institution.

Since 2012, Frédéric Mazenc is a, expert for the ANVUR (National Agency for the Evaluation of Universities and Research Institutes, Italy). His mission consists in evaluating the contribution of Italian scientists.

Since 2011, Frédéric Mazenc is a, expert for the Romanian National Council for Development and Innovation (Romania). His mission consists in evaluating research projects funded by the this institution.

7.1.7. Research Administration

Catherine Bonnet is a member of the

- *Parity Committee* of Inria created sice its creation in 2015.
- Bureau du Comité des Projets du CRI Saclay-Ile-de-France since 2018.
- Coordination committee of the Mentoring Program of Inria Saclay-Île-de-France.
- PhD referent committee at L2S, CentraleSupelec.
- Administration council of the association *Femmes et Mathématiques*

Since October 2017, Frédéric Mazenc is Correspondant Inria Saclay A.M.I.E.S., http://www.agence-maths-entreprises.fr/. Since September 2019, he is member of "la Commission de Déloppement Technologique". He is member of the "Conseil du Laboratory of Signal and Systems".

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Licence: Islam Boussaada, *Control of bioprocesses*, 27h, 1st year, CentraleSupélec Université Paris-Saclay, France.

Licence: Silviu Niculescu, *Mathematics*, 15h, 1st year, ENSMP Paris, France.

Licence: Silviu Niculescu, *Introduction to optimization*, 30h, 1st year, ESIEE Paris, France.

Licence: Giorgio Valmorbida, *Signal Processing*, 1st year, 43h CentraleSupélec Université Paris-Saclay.

Master: Giorgio Valmorbida, *Tutorials - Modelling, Control, Optimization and Electrical Machines*, 1st and 2nd years, 55.5h, CentraleSupélec Université Paris-Saclay.

Master: Giorgio Valmorbida, *Projects and Internship supervision*, 2nd and 3rd years, 81h, Centrale-Supélec Université Paris-Saclay.

Master: Giorgio Valmorbida, *Nonlinear Systems*, 3h, CentraleSupélec Executive Education, Université Paris-Saclay.

Master : Catherine Bonnet, *Stability properties and stabilization of interconnected dynamical systems involving delays*, 20h, IPSA, France.

Master : Silviu Niculescu, *Signals and Systems*, 12h, ESIEE Paris, France.

Master : Giorgio Valmorbida, *Control*, 40.5, Master MAE (M1), Université Paris-Saclay.

Master : Giorgio Valmorbida, *Stability of Dynamical Systems*, Master ATSI (M2), Université Paris-Saclay.

Doctorat : Silviu Niculescu, *Controlling Delayed Dynamics: Advances in Theory, Methods and Applications*, 7h, CISM Udine, Italy.

7.2.2. Supervision

PhD in progress: Souad Amrane, on real pole-placement for retarded functional differential equations, University Mouloud Mammeri. Since 09/2017. Supervisors: Fazia Bedouhene and Islam Boussaada.

PhD in progress: Amina Benarab, Characterization of the exponential decay of linear delay systems solutions, University Paris Saclay. Since 10/2019. Supervisors: Catherine Bonnet, Islam Boussaada and Karim Trabelsi.

PhD: Caetano Cardeliquio, Contributions to the Theory of Time-Delay Systems: Stability and Stabilisation, UNICAMP & Université Paris Saclay, 27 September 2019; Supervisors : Catherine Bonnet and André Fioravanti.

PhD in progress: Leonardo Broering Groff, Commande Périodique Déclenché par Événements, Université Paris-Saclay et UFRGS. Since 03/2017. Supervisors: Giorgio Valmorbida and Joao Manoel Gomes da Silva Jr.

PhD in progress: Jose Castillo, Design, Modeling and control of multi drones for aerial handling, University Paris Saclay, 10/2018, Islam Boussaada and Juan Escareno.

PhD in progress: Naouel Debiane, Bond Graph modeling for robust control and diagnosis of macatronic systems, University of Lille. Since 03/2017. Supervisors: Belkacem Ould-Bouamama and Islam Boussaada.

PhD in progress: Ali Diab, Commande par filtrage non linéaire des systèmes d'assistance direction, Université Paris-Saclay. Since 10/2019. Supervisors: Giorgio Valmorbida and William Pasillas-Lepine.

PhD in progress: Ricardo Falcon Prado, Active vibration control of flexible structures under input saturation through delay-based controllers and anti- windup compensators, University Paris Saclay. Since 10/2019. Supervisors: Islam Boussaada and Sami Tliba.

PhD in progress: Javier Eduardo Pereyra Zamundio, New backstepping design for systems with delay: finite time stabilization, robust stabilization, CINVESTAV, Instituto Politecnico Nacional. Since 10/2019. Supervisors: Sabine Mondié and Frédéric Mazenc.

PhD in progress : Amira Remadna, On pole-placement approach for retarded functional differential equations, University Badji Mokhtar-Annaba. Since 09/2019. Supervisors: Islam Boussaada and Azzedine Benchettah.

Postdoc: Da-Jung Cho, Modelling of bacteria communication, May-August 2019. Supervisors: Catherine Bonnet, Matthias Fuegger and Thomas Nowak.

7.2.3. *Juries*

- Catherine Bonnet was member of the Grenoble and Nancy Junior Researcher Inria recruiting committees.
- Catherine Bonnet was President of the PhD thesis of Yanqiao Wei *'Non-asymptotic and Robust fractional order differentiators using generalized modulating functions'*, 15 November 2019, INSA Val de Loire.

7.3. Popularization

7.3.1. *Interventions*

- The team welcomed Sophie Merheb, high-school student of Lycée privé Notre-Dame Les Oiseaux, Verneuil-sur-Seine, for the period 17-26 June 2019.

ECUADOR Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events: Organisation

7.1.1.1. Member of the organizing committees

- Laurent Hascoët is on the organizing commitee of the EuroAD Workshops on Algorithmic Differentiation (http://www.autodiff.org).
- Laurent Hascoët was on the organizing and program committees of the workshop "Program Transformations for Machine Learning" at NeurIPS2019, Vancouver Canada, December 14th.

7.1.2. Invited Talks

Laurent Hascoët was invited to give a talk on AD for the "GdR Calcul", at "Institut de Physique du Globe", Paris, January 24th.

7.1.3. Scientific Expertise

Alain Dervieux is Scientific Director for the LEMMA company.

ELAN Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Florence Bertails-Descoubes was co-founder and co-chair (together with Basile Audoly, École Polytechnique) of the new graphics-physics worskhop Graphyz, held at Inria in Montbonnot on October 24-25 2019. The ELAN team was the local organizer of the event.

9.1.1.2. Member of the Organizing Committees

- Florence Bertails-Descoubes, together with the help of Inria and of the ELAN team, has organized the new graphics-physics workshop Graphyz at Inria in Montbonnot. See above.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

- Florence Bertails-Descoubes was member of the ACM SIGGRAPH Technical Program Committee in 2019, and of the Eurographics Technical Program Committee in 2019.

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

- Florence Bertails-Descoubes was reviewer in 2019 for ACM Transaction on Graphics, ACM SIG-GRAPH 2019, ACM SIggraph Asia 2019, ACM-EG Symposium on Computer Animation, UIST 2019, Nonlinear Dynamics, Computer Graphics Forum, SIAM Journal on Scientific Computing, Elsevier Computer Methods in Applied Mechanics and Engineering.
- Thibaut Metivet was reviewer in 2019 for Elsevier Computer Methods in Applied Mechanics and Engineering and Coupled Systems Mechanics.

9.1.4. Invited Talks

- Florence Bertails-Descoubes, Keynote speaker at Eurographics 2019, Genova, Italy, May 2019.
- Florence Bertails-Descoubes, invited talk at Matherials, a series of cross-disciplinary seminars jointly organized by Laboratoire Jean Kuntzmann, SIMAP and Institut Fourier, June 2019.
- Florence Bertails-Descoubes, Exposé invité aux Journées Françaises d'Informatique Graphique, Marseille, November 2019.
- Florence Bertails-Descoubes, invited talk at the HCERES evaluation of Laboratoire Jean Kuntzmann, Inria Montbonnot, December 2019.
- Thibaut Metivet, invited poster at RheoSuNN, a workshop on the numerical simulation of suspensions organised at Ecole Polytechnique in March 2019.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Raphaël Charrondière, TP Projet Logiciel, 13h éq TD, L2 STG Grenoble, Université Grenoble Alpes.

Licence : Florence Bertails-Descoubes, Méthodes Numériques, 18h éq TD, L3, ENSIMAG 1A, Grenoble INP.

License : Thibaut Metivet, Analyse, 33h éq TD, L3, ENSIMAG 1A, Grenoble INP.

Master : Raphaël Charrondière, Complexité Algorithmique Des Problèmes, 15h éq TD, M1, Université Grenoble Alpes.

Master : Florence Bertails-Descoubes, Special Course for M2 at École Normale Supérieure de Lyon, entitled "Numerical Mechanics: From Lagrangian mechanics to simulation tools for computer graphics", 19h éq TD.

Master : Mickaël Ly, Special Course for M2 at École Normale Supérieure de Lyon, entitled "Numerical Mechanics: From Lagrangian mechanics to simulation tools for computer graphics", 14h éq TD.

9.2.2. *Supervision*

PhD in progress : Mickaël Ly, Static inverse modelling of cloth, 01 octobre 2017, Florence Bertails-Descoubes and Mélina Skouras.

PhD in progress : Haroon Rasheed, Inverse dynamic modeling of cloth, 01 novembre 2017, Florence Bertails-Descoubes, Jean-Sébastien Franco, and Stefanie Wuhrer

PhD in progress : Raphaël Charrondière, Modeling and numerical simulation of elastic inextensible surfaces, 01 septembre 2018, Florence Bertails-Descoubes and Sébastien Neukirch.

PhD in progress : François Der Hovsepian, Modélisation et simulation d'écoulement de cellules tumorales dans le sang et de l'adhésion aux parois, 19 October 2017, Christophe Prud'homme, Vincent Chabannes (Université de Strasbourg) and Thibaut Metivet.

9.2.3. *Juries*

Florence Bertails-Descoubes, member (Examinatrice) of Ph.D. Thesis committee of A. Sibellas (8 March 2019), INSA Lyon (directeur de thèse : E. Maire)

Florence Bertails-Descoubes, member (Présidente du jury) of Ph.D. Thesis committee of V. Leroy (17 October 2019), Inria Rhône-Alpes Montbonnot (directeur de thèse : E. Boyer, co-encadrant : J.-S. Franco).

Thibaut Metivet, member (Encadrant, invité) of Ph.D. Thesis committee of A. Sengers (19 July 2019), Université Grenoble-Alpes (directeur de thèse : E. Maitre).

9.3. Popularization

9.3.1. *Articles and contents*

- Focus on our cloth simulator Argus, on a video prepared by A. Aftalion and published in February 2019 in http://video.math.cnrs.fr.

FACTAS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

- L. Baratchart gave an oral communication at NCMIP 2019 in Cachan,
- V. L. Coli gave oral communications at the 2nd "Journée Matériaux UCA", Sophia Antipolis, September, and at the workshop "Céramiques imprimées de Méditerranée occidentale. Matières premières, productions, usages" of the ANR CIMO, Nice, France, March, http://www.cepam.cnrs.fr/sites/cimo/.
- D. Martinez Martinez gave an oral communication at «Journées Nationales des Microondes», Caen, France and at «European microwave Conference (EuMC) 2019», Paris, France.
- F. Seyfert was invited to give a lecture at the Technical University of Cartagena University (Spain) and gave an invited talk at the workshop «Rational approximation for Electrical Engineering», Moscow, Russia sponsored by Huawei.

9.1.1. Scientific Events: Selection

9.1.1.1. Member of the Conference Program Committees

L. Baratchart was on the program committee of "Applied Inverse Problems" (AIP) 20019, Grenoble, France http://www.aip2019-grenoble.fr.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

L. Baratchart is on the editorial board of the journals "Computational Methods and Function Theory" and "Complex Analysis and Operator Theory".

9.1.2.2. Reviewer - Reviewing Activities

- J. Leblond was a reviewer for the journals *Engineering with Computers*, *Inverse Problems*.
- F. Seyfert was a reviewer for IEEE Transactions on Microwave Theory and Techniques

9.1.3. Invited Talks

- L. Baratchart gave an invited address at the conference "One-Dimensional Complex Analysis and Operator Theory" in Saint Petersburg, May 13-17, https://sites.google.com/view/sft2019/home/conference. He was an invited speaker at the workshop «Rational approximation for Electrical Engineering», Moscow, Russia, sponsored by Huawei, and lectured at the Macao university of sciences and techniques, in April. Macao University of Sciences and Technology in April.
- L. Baratchart and J. Leblond were invited to give talks at AIP 2019, Grenoble, France, July, http://www.aip2019-grenoble.fr.
- S. Chevillard was invited to give a talk at a NFS-sponsored workshop on magnetic imaging organized outside the American Geophysical Union meeting (December 7-8).
- J. Leblond was an invited speaker at the final workshop of the ANR FastRelax, Lyon, France, May, http://fastrelax.gforge.inria.fr/FastRelax2019.html.

9.1.4. Scientific Expertise

- L. Baratchart was a member of selection panel 40 (Mathematics) of the Agence Nationale de la Recherche (ANR).

- J. Leblond was an external reviewer for a promotion evaluation process at Chapman University (Orange, CA, USA).
- F. Seyfert was a reviewer for the National Science Centre of Poland

9.1.5. Research Administration

- J. Leblond is a member of the "Conseil Scientifique" and of the "Commission Administrative Paritaire" of Inria.
- M. Olivi is a member of the CLDD (Commission Locale de Développement Durable) and in charge, with P. Bourgeois, of coordination.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Colles: S. Chevillard has given "Colles" (oral examination preparing undergraduate students for the competitive examination to enter French Engineering Schools) at Centre International de Valbonne (CIV) (2 hours per week) until June 2019.

9.2.2. Supervision

PhD in progress: K. Mavreas, *Inverse source problems in planetary sciences: dipole localization in Moon rocks from sparse magnetic data*, since October 2015, advisors: S. Chevillard, J. Leblond; defense scheduled January 31, 2020.

PhD in progress: G. Bose, *Filter Design to Match Antennas*, since December 2016, advisors: F. Ferrero, F. Seyfert and M. Olivi.

PhD in progress: S. Fueyo, *Cycles limites et stabilité dans les circuits*, since October 2016, advisors: L. Baratchart and J.-B. Pomet (Inria Sophia, McTao).

PhD in progress: P. Asensio, *Inverse source estimation problems in EEG and MEG*, since November 2019, advisors: L. Baratchart, J. Leblond.

PhD in progress: M. Nemaire, *Inverse potential problems with application to quasi-static electromagnetics*, since October 2019, advisors: L. Baratchart, J. Leblond, S. Kupin (IMB, Univ. Bordeaux).

Post-doc. in progress: V. L. Coli, *Multiscale Tomography: imaging and modeling ancient materials*, since March 2018, advisors: J. Leblond, L. Blanc-Féraud (project-team Morpheme, I3S-CNRS/Inria Sophia/iBV), D. Binder (CEPAM-CNRS, Nice).

9.2.3. Juries

L. Baratchart was a reviewer of the "Mémoire d'habilitation" of Moncef Mahjoub, ENIT, Tunis, September 2.

J. Leblond was a member of the PhD committees of I. Santos (Univ. Paul Sabatier, Toulouse, February), S. Amraoui and K. Maksymenko (Univ. Côte d'Azur, December).

M. Olivi was a member of the HdR committees of F. Seyfert (Univ. Côte d'Azur, February 6), C. Poussot-Vassals (Univ. Toulouse, July 12) and of the PhD committees of D. Martinez Martinez (Univ. Limoges, June 20) and P. Kergus (Univ. Toulouse, October 18)

F. Seyfert was a member of the PhD committee of Johan Sence (Univ. Limoges, November 15) and D. Martinez Martinez (Univ. Limoges, June 20).

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

M. Olivi was responsible for Scientific Mediation and president of the Committee MASTIC (Commission d'Animation et de Médiation Scientifique) https://project.inria.fr/mastic/ until October 30.

9.3.2. Articles and contents

M. Olivi wrote a review of the book "Algorithms: la bombe à retardement" by C. O'Neil for Interstice https://interstices.info/sciences-du-numerique-et-impact-sur-la-societe/

9.3.3. Education

"La fête des Maths de l'ESPE Nice-Liégeard" (March 5 and 26): M. Olivi animated two half-day workshop sessions "jouons avec des expériences scientifiques" https://pixees.fr/jouons-avec-des-experiences-scientifiques/ for primary school students.

9.3.4. Interventions

- "Fête de la science: Mouans-Sartoux fête les sciences du quotidien" (October 10-11 for scholars: 8 classes, October 12 for public: 1000 people): M. Olivi animated the activity "jouer à transmettre des images" in collaboration with the "espace de l'art concret" https://www.espacedelartconcret.fr/.
- "Stage MathC2+" (June 19-22): M. Olivi animated a workshop session on "How to analyze sounds with mathematical functions".
- V. L. Coli gave a talk "Archéologie et mathématiques : algorithmes pour l'identification des gestes des premiers potiers", and participated to the organization of the exhibition of the ANR project CIMO, Forum des Sciences, 80 years of CNRS, October, CIV, Valbonne.
- Fabien Seyfert gave a pitch on Factas activities during the visit of the company SICAME (March 27) and Martine Olivi gave a pitch on Factas activities for the celebration of InriaTech 10th birthday (April 3)

9.3.5. Internal action

- S. Chevillard gave a talk "Réchauffement climatique : où en est-on ? où va-t-on ?" at the c@fé-in of the Research Center, November.
- V. L. Coli gave a talk "Archéologie et mathématiques : algorithmes pour l'identification des gestes des premiers potiers" at the c@fé-in of the Research Center, October. She also participated to the organization of the "1er Colloque doctoral préhistoire, paléoenvironnement, archéosciences", November, MSHS, Nice, https://www.cepam.cnrs.fr/evenement/1er-colloque-doctoral-prehistoire-paleoenvironnement-archeosciences/, where she gave a talk "Approches mathématiques pour la caractérisation des potteries néolithiques".
- M. Olivi co-organized about 10 "cafés scientifiques" (c@fé-in's and cafés Techno, 30 to 80 participants each) https://project.inria.fr/mastic/category/cafein/

9.3.6. Creation of media or tools for science outreach

M. Olivi co-supervised the creation of new scientific wooden objects by SNJ AZUR (funds from APOCS region): pixel art and transmission of images https://pixees.fr/jouer-a-transmettre-des-images/, IA machine. She also co-supervised the creation of videos by Thibaut Ehlinger (internship) and Gregory Casala (apprenti), funds from Class'Code and the national network, see https://pixees.fr/pause-ta-science-une-chaine-pour-decrypter-les-objets-scientifiques/.

GAMMA Project-Team (section vide)

GEOSTAT Project-Team

10. Dissemination

10.1. Introduction

10.1.1. Member of the Editorial Boards

- H. Yahia is Review Editor for the journal Frontiers in Physiology (Fractal Physiology).

10.1.2. Invited Talks

- Journée des Systèmes et de la Matière Complexe 4ème édition, Paris-Saclay, October 2019: G. Attuel gave the presentation *Voir au coeur d'une turbulence forte sans cascade et mourir...*, link.

10.2. Introduction

10.2.1. Teaching

Master : K. Daoudi, Data mining, 20 hours, M2 MIAGE, University of Lorraine.

Master : A. Rashidi, Introduction to deep learning, 12 hours, M1, course given in the team during D. Singh's visit.

10.2.2. Supervision

PhD : A. El Aouni, Lagrangian coherent structures and physical processes of coastal upwelling, Bordeaux University, September 24, 2019, supervisors: H. Yahia, K. Minaoui.

Master : H. Belmajdoub, Upwelling dynamics along the Atlantic coast of Morocco, Rabat University, supervised by A. El Aouni.

PhD in progress : H. Belmajdoub, Upwelling dynamics along the Atlantic coast of Morocco, Rabat University, cosupervised by A. El Aouni.

PhD in progress : Z. El Abidi, caractérisation multicapteur de l'upwelling marocain, Rabat University, cosupervised by A. El Aouni.

<h1 style="color:red; text-align:center">I4S Project-Team</h1>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events selection

9.1.1.1. Member of the Conference Program Committees

J.Dumoulin is

- member of the scientific committee of the GI Division (Geosciences Instrumentation and Data Systems) of EGU (European Geosciences Union) for infrastructure instrumentation and monitoring since April 2013. (http://www.egu.eu/gi/structure/)
- member of the scientific committee of QIRT (quantitative Infrared Thermography) since February 2014 (http://www.qirt.org/)
- Co-organizer of sub-Program group PG4: Earth Surface Investigation Method at General Assembly of EGU 2019 (http://www.egu2019.eu/).

Q. Zhang is

- member of the international program commitee (technical associate editor) of the 21st IFAC World Congress that will take place in Berlin, Germany, July 12-17, 2020.
- member of IFAC Technical Committee on Modelling, Identification and Signal Processing (TC 1.1).
- member of IFAC Technical Committee on Adaptive and Learning Systems (TC 1.2).
- member of IFAC Technical Committee on Fault Detection, Supervision and Safety of Technical Processes (TC 6.4).

L. Mevel is

- member of the EWSHM scientific committee.

V. Le Cam is

- member of the IWSHM scientific committee.
- head and general secretary of the EWSHM scientific committee.
- member of the Asian Pacific Workshop

M. Doehler is

- member of IFAC Technical Committee on Modelling, Identification, and Signal Processing.
- member of the IOMAC scientific committee.

9.1.1.2. Reviewers

M. Doehler was reviewer for ECC 2020.

J. Dumoulin was reviewer for EGU 2019, QIRT ASIA 2019 and SFT 2019.

Q. Zhang was reviewer for CDC 2019, IFAC Word Congress 2020.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

L. Mevel is member of the editorial board of the journal Mathematical Problems in Engineering, and of the journal Shock and Vibration.

Q. Zhang is member of the editorial board of the journal of Intelligent Industrial Systems.

J. Dumoulin is member of the editorial board of the journal Quantitative Infrared Thermography, and Executive Editor for the journal Geoscientific Instrumentation and Data Systems.

9.1.2.2. Reviewer - Reviewing Activities

L. Mevel was reviewer for Mechanical Systems and Signal Processing, Engineering Structures.Structural Control and Health Monitoring

M. Doehler was reviewer for Mechanical Systems and Signal Processing, Engineering Structures, Philosophical Transactions A Mathematical, Physical and Engineering Sciences, Computers and Structures, Structural Health Monitoring.

J. Dumoulin was reviewer for Quantitative Infrared Thermography Journal, GI Journal (EGU), SFT conference, Engineering Geology, International Journal of Pavement Research and Technology, Remote sensing of environment, Structural Health Monitoring, Composites Structures

9.1.3. Invited Talks

L. Ibos and J. Dumoulin, « Thermographie infrarouge: du laboratoire vers les mesures de terrain », Atelier Métrologie Thermique Avancée, SFT 2019 (Congrès annuel de la Société Française de Thermique), Nantes, France, 3 – 6 juin 2019.

9.1.4. Leadership within the Scientific Community

V. Le Cam organized the 2nd SHM France meeting in Nantes, together with CEA and Precend.

9.1.5. Scientific Expertise

V. Le Cam did an expertise in the context of EFFICACITY IRT. The expertise was about the instrumentation of RATP station and the control of the speed of escalators.

V. Le Cam helped SNCF Reseau to dissiminate at industrial results the monitoring of axle counters developed in 2018.

Arthur Bouché did an expertise for SNCF about electromagnetism and axle counters.

Ivan Guéguen did an expertise for ASCQUER for labelization of Lacroix Millenium lights for construction sites.

9.1.6. Research Administration

V. Le Cam is member of the scientific council of WEN (West Electronic Network) since 2014, which is a cluster of about 200 companies, academics and research laboratories active in electronics.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

J. Dumoulin

- Licence Professionnelle TAM (Techniques Avancées en Maintenance): thermographie infrarouge active, 24h, Université Paris-Est Créteil (UPEC), France
- Master 2 ITII, BTP, module Maintenance et réhabilitation des ouvrages, Transferts thermiques dans les Structures : Des principes physiques à l'application sur site réel, 12 h, Ecole Centrale de Nantes(ECN), France.
- With Nicolas Le Touz lecture on Solar Hybrid Roads at SMARTIE ETN Training week 2019
- Lecture on Long term thermal monitoring of Structures at SMARTIE ETN Training week 2019
- Lecture on IR for inspection and/or thermal monitoring of infrastructures: scope of application, technical solutions and analysis methods, at QIRT ASIA 2019 courses day.
- Lecture on Active Thermography for NDE at APESS 2019 (Asia-Pacific-Euro Summer School on Smart Structures).

V. Le Cam

- Master 2 Civil engineering, Structural Monitoring, 4h, Université de Nantes, France
- Licence 3 Professional SEICOM, 3h of theoretical lessons and 20H of practical lessons on Embedded and Smart Systems, Université de Nantes, France
- ESEO, 16h, practical lessons on embedded and smart systems under Linux, France
- Master 2 Electrical Engineering (GEII), 4h on electronic systems and Structural Monitoring, Université Bretagne Sud, France
- Polytech la Roche sur Yon, 8h embeded wireless algorithms §8h for David Pallier

M. Doehler

- Cycle préparatoire intégré, STPI, mathématiques, 48h TD, INSA Rennes, France

X. Chapeleau

- Licence Pro Mesures physiques, Mesures optiques, 15h, IUT de St Nazaire, Université de Nantes, France

T. Toullier

- Master 1, TP Capteurs (12h), contrôle, commandes, École Centrale de Nantes, France
- Foundation Master, TD Programming and Data Analysis (14h), École Centrale de Nantes, France

F. Gillot

- Master 1, Conception optimale robuste de systèmes mécaniques (10h), École Centrale de Lyon, France
- Master 1, Dynamique des systèmes biologiques humains (4h), École Centrale de Lyon, France
- Formation initiale des ingénieurs de l'École Centrale de Lyon, TP, TD, BE, niveau L3, (50h), France

9.2.2. Supervision

PhD : Thibaud Toullier. *Simultaneous characterization of the radiative properties and temperatures of envelopes of structures in natural environment by multispectral infrared thermography* L. Mevel, J. Dumoulin and M. Doehler. Ecole doctorale MathSTIC, Université de Rennes 1,defended on 6th November 2019. [15].

PhD : Antoine Bassil, *Fibre-optic sensor for fatigue monitoring*, D. Leduc, O. Abraham and X. Chapeleau. Ecole doctorale SPIGA, Université de Nantes, defended on 26 November 2019.

PhD : Bian Xong, *Vibration analysis by video image processing for civil engineering structure monitoring*, Q. Zhang, V. Balthazar. Ecole doctorale MathsTIC, Université de Rennes 1, since October 2018.

PhD : Eva Viefhues, *Statistical damage localization for civil structures*, L. Mevel and M. Doehler. Ecole doctorale MathSTIC, Université de Rennes 1, since November 2016.

PhD : David Pallier, *Sensor Enhancement to Augmented Usage and Reliability*, S. Pillement, IETR, V. Le Cam, Ecole doctorale MathSTIC

PhD : Alexander Mendler, *Vibration-based structural health monitoring of road bridges*, C. Ventura and M. Doehler. University of British Columbia, Vancouver, Canada, since September 2018.

Ludovic Gavérina post-doctoral project on in-situ measurement of thermal resistance of building envelopes, J. Dumoulin, march 2017- february 2019.

Nicolas Le Touz post-doctoral project on in-situ measurement of thermal resistance of building envelopes, J. Dumoulin, December 2018- august 2019.

9.2.3. Juries

Q. Zhang participated in the following PhD defense committees:

- Missie Aguado Rojas at CentraleSupélec, on June 14, 2019.
- Tzila Ajamian at Centrale Nantes on October 24, 2019.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

L. Mevel is member of CLHSCT committee in Rennes.

L. Mevel is member of Comité de centre committee in Rennes.

L. Mevel is Head of Science in 2nd of Inria Rennes Center.

V. Le Cam is Head of SII LAb at IFSTTAR Nantes.

J. Dumoulin is scientific Head SII LAb at IFSTTAR Nantes.

9.3.2. Articles and contents

9.3.2.1. Encycopedia article on nonlinear system identification

In the second edition of Encyclopedia of Systems and Control, published by Springer in September 2019, the article on nonlinear system identification authored by Q. Zhang has been updated with the latest progresses on this topic.

Nonlinear mathematical models are essential tools in various engineering and scientific domains, where more and more data are recorded by electronic devices. How to build nonlinear mathematical models essentially based on experimental data is the topic of this entry. Due to the large extent of the topic, this entry provides only a rough overview of some well-known results, from gray-box to black-box system identification. DOI: https://doi.org/10.1007/978-1-4471-5102-9_104-2

9.3.3. Interventions

M. Doehler and Q. Zhang participated the outreach activity "J'peux pas, j'ai informatique" for school classes on April 2, 2019.

9.3.4. Creation of media or tools for science outreach

9.3.4.1. Showroom demonstrations

A damage localization mockup has been developed and installed in the showroom of Inria Rennes. It has been the support for a demonstration for the outreach activity "J'peux pas, j'ai informatique" for school classes on April 2, 2019, showing that computer science also can be related to physics and statistics. An ADT Carnot has been funded on that topic and will help the maturation of such project.

<p style="text-align:center">**INOCS Project-Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- 23rd Belgian Mathematical Optimization Workshop, La Roche, Belgium, April 25-26, 2019: Bernard Fortz (Organizer)

10.1.1.2. Member of the Organizing Committees

- 8th Winter School on Network Optimization, Estoril, Portugal, January 14-18, 2019: Bernard Fortz

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

LI Brazilian Symposium on Operational Research (LI SBPO), Limeira/SP - Brazil, September 2019: Martine Labbé

ORBEL 2019, Hasselt, Belgium, January 2019: Bernard Fortz, Martine Labbé

ROADEF2019 - 19ème Conférence de la Société Française de Recherche Opérationnelle et d'Aide à la Décision, Le Havre, France, February 2019: Luce Brotcorne, Diego Cattaruzza, Bernard Fortz, Frédéric Semet

INOC 2019, International Network Optimization Conference, Avignon, France, June 2019: Bernard Fortz

EURO 2019, European Conference of Operational Research Societies, Dublin, Ireland, June 2019: Bernard Fortz

5th JuliaCon, Baltimore, USA, July 22-26, 2019: Mathieu Besançon

TRISTAN X-Triennial Symposium on Transportation Analysis, Jun 2019, Hamilton Island, Australia, June 2019: Frédéric Semet

Workshop of the Transportation and Logistics Society, INFORMS, Jun 2019, Vienna, Austria, June 2019: Frédéric Semet

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- EURO Journal on Computational Optimization: Martine Labbé - Editor in chief, Bernard Fortz - Editor
- Computers and Operations Research: Luce Brotcorne - Member of the Advisory Board
- INFORMS Journal on Computing: Bernard Fortz - Associate editor
- International Transactions in Operations Research: Bernard Fortz, Martine Labbé - Associate editors
- Transportation Science: Martine Labbé - Member of the Advisory Board

10.1.3.2. Reviewer - Reviewing Activities

Annals of Operations Research, Applied Computing and Informatics, Central European Journal of Operations Research, Computers & Operations Research, Computational Optimization and Applications, Discrete Applied Mathematics, EURO Journal on Transportation and Logistics, European Journal of Operational Research, IISE Transactions, INFORMS Journal on Computing, International Journal of Management Science and Engineering Management, Mathematical Programming Computation, Networks, Omega, Operations Research, Optimization and Engineering, RAIRO - Operations Research, Transportation Science, IEEE Transactions on Power Systems, IEEE Transactions on Smart Grids, IEEE Power Engineering Letters: Mathieu Besançon, Luce Brotcorne, Diego Cattaruzza, Bernard Fortz, Martine Labbé, Maxime Ogier, Frédéric Semet.

10.1.4. Invited Talks

- Mathieu Besançon was invited speaker at the JuliaNantes workshop in Nantes, France, June 2019
- Martine Labbé was plenary speaker at CPAIOR in Tessalonik, Greece, June 2019
- Martine Labbé was plenary speaker at AMSI Optimise in Perth, Australia, June 2019
- Martine Labbé was plenary speaker at the 7th International Conference on Variable Neighborhood Search, Rabat, Marocco, October 2019
- Frédéric Semet was invited speaker at the Workshop on the Logistics of Autonomous Vessels, Bergen, Norway, May 2019

10.1.5. Leadership within the Scientific Community

EURO Working Group "Pricing and Revenue Management": Luce Brotcorne - coordinator

EURO Working Group "European Network Optimization Group (ENOG)": Bernard Fortz - coordinator

EURO Working Group "Vehicle routing and logistics optimization (VEROLOG)": Frédéric Semet - Member of the board

INFORMS Women in OR/MS: Luce Brotcorne - International liaison

ORBEL (Belgian Operations Research Society): Bernard Fortz - Member of the board of administration

ORBEL representative for EURO and IFORS: Bernard Fortz

CNRS GdR 3002: Operations Research: Frédéric Semet - Member of the steering committee

10.1.6. Scientific Expertise

Scientific orientation committee of the Interuniversity Centre on Entreprise Networks, Transportation and Logistics (CIRRELT), Canada: Bernard Fortz, Frédéric Semet - Members

Center for Mathematics, Fundamental Applications and Operations Research, University of Lisbon: Martine Labbé - Member

DFG Review Panel "Mathematics" for Clusters of Excellence, 2018: Martine Labbé - Member

Scientific committee of France-Netherlands Exchange Program: Luce Brotcorne - Member

Evaluation committee for Inria/MITACS Exchange Program: Luce Brotcorne - Member

Evaluation committee COST GTRI: Luce Brotcorne - Member

Fund for research training in industry and agriculture (FRIA) PE1 - jury 1: Bernard Fortz - Member

Scientific board of PICOM competitiveness cluster: Frédéric Semet - Member

Agence Nationale de la Recherche (ANR): Luce Brotcorne, Frédéric Semet - Reviewer

Fond de Recherche Nature et Technologie du Québec: Frédéric Semet - Reviewer

Research Council of Norway: Frédéric Semet - Reviewer

Evaluation committee NSERC - EG 1509: Bernard Fortz - Member

10.1.7. Research Administration

Committee for the Technological Development (CDT): Luce Brotcorne - Member

CRIStAL: Frédéric Semet - Deputy-director

Scientific council of Centrale Lille: Frédéric Semet - Elected member

Scientific council of OPTIMA thematic group of CRIStAL: Diego Cattaruzza Member

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Bernard Fortz, Recherche Opérationnelle et Applications, 30hrs, M1, University of Mons (Charleroi campus), Belgium

Master: Bernard Fortz, Continuous Optimization, 24hrs, M1 & M2, Université libre de Bruxelles, Belgium

Master: Frédéric Semet, Non-linear Optimization, 30hrs, M2, Centrale Lille

Master: Frédéric Semet, Operations Research, 28hrs, M2, Centrale Lille

Master: Luce Brotcorne, Optimisation, 14hrs, M1, Polytech Lille

Master: Luce Brotcorne, Recherche opérationnelle, 16hrs, M1 apprentissage, Polytech Lille

Master: Diego Cattaruzza, Maxime Ogier, Frédéric Semet, Prescriptive analytics and optimization, 64hrs, M1, Centrale Lille

Master: Diego Cattaruzza, Maxime Ogier, Object-Oriented Programming, 48hrs, M1, Centrale Lille

Master: Diego Cattaruzza, Maxime Ogier, Operations Research, 16hrs, M1, Centrale Lille

Licence: Diego Cattaruzza, Maxime Ogier, Object-Oriented Programming, 36hrs, L3, Centrale Lille

Licence: Frédéric Semet, Advanced programming and Complexity, 24hrs, L3, Centrale Lille

Licence: Diego Cattaruzza, Maxime Ogier, Object-Oriented Programming, 40hrs, L2, Centrale Lille

Licence: Bernard Fortz, Algorithmique 1, 12hrs, L1, Université libre de Bruxelles, Belgium

Licence: Bernard Fortz, Algorithmique et Recherche Opérationnelle, 24hrs, L3, Université libre de Bruxelles, Belgium

10.2.2. Supervision

PhD: Simon Bélières, Mathematical programming for tactical transportation planning in a multi-product supply chain, November 2019, Nicolas Jozefowiez, Frédéric Semet

PhD: Wenjuan Gu, Location routing for short and local fresh food supply chain, November 2019, Maxime Ogier, Frédéric Semet

PhD: Yuan Yuan, Vehicle Routing Problems with Synchronization for City Logistics, October 2019, Diego Cattaruzza, Frédéric Semet

PhD: Léonard Von Niederhausern, Design and pricing of new services in energy in a competitive environment, March 2019, Luce Brotcorne, Didier Aussel

PhD in progress: Luis Alberto Salazar Zendeja, Formulations and resolution methods for network interdiction problems, from November 2018, Diego Cattaruzza, Martine Labbé, Frédéric Semet

PhD in progress: Matteo Petris, Column generation approaches for integrated operationnal problems, from October 2019, Diego Cattaruzza, Maxime Ogier, Frédéric Semet

PhD in progress: Concepción Domínguez Sánchez, Mixed Integer Linear Models and Algorithms for Pricing Problems, from October 2017, Martine Labbé

PhD in progress: Moises Rodriguez Madrena, Problems in data analysis and location Theory, from January 2019, Martine Labbé, Justo Puerto

PhD in progress: Fränk Plein, Models and methods for the robust verification of booked capacities in gas networks in a decentralized setting, from October 2017, Martine Labbé

PhD in progress: Jérôme De Boeck, Optimization problems in energy, from October 2015, Bernard Fortz

PhD in progress: Mathieu Besançon, Approche bi-niveau de réponse à la demande dans les réseaux électriques intelligents, from September 2018, Miguel Anjos, Luce Brotcorne, Frédéric Semet

PhD in progress: Yaheng Cui, Models and methods for decentralized decision in logistics networks, from Oct 2016, Luce Brotcorne, Eric Ballot

10.2.3. Juries

- Ikram Bouras, PhD, Université de Montpellier, 2019, "Fixed Charge Network Design Problem with User Optimal flows": Luce Brotcorne (reviewer)
- Umar Hashmi, PhD, Université PSL, Paris, 2019, "Optimization and Control of Storage in Smart Grids": Luce Brotcorne (reviewer)
- Léonard von Niederhäusern, PhD, Centrale Lille, 2019, "Design and pricing of new energy services in a competitive environment": Bernard Fortz (president)
- Meihui Gao, PhD, Université de Lorraine, 2019, "Models and methods for Network Function Virtualization (NFV) architectures": Bernard Fortz (reviewer)
- Yuan Yuan, PhD, Centrale Lille, 2019, "Models and Algorithms for Last Mile Delivery Problems with Multiple Shipping Options": Martine Labbé (member)
- José Neto, HDR, Université Evry, 2019, "Some contributions to mathematical programming and combinatorial optimization": Bernard Fortz (reviewer)
- Marc-Antoine Coindreau, PhD, University of Lausanne, Switzerland, 2019, "Managing Advanced Synchronization Aspects in Logistics Systems": Frédéric Semet (reviewer)
- Ruslan Sadykov, HDR, Université de Bordeaux, 2019, "Modern Branch-Cut-and-Price": Frédéric Semet (reviewer)

10.3. Popularization

- Luce Brotcorne, Journées scientifiques de l'Inria, Lyon, June 2019
- Frédéric Semet, Cité de l'IA - Intelligence Artificielle, MEDEF Lille Métropole, April 2019
- Maxime Ogier, Frédéric Semet, 4ème séminaire humAIn : IA, optimisation et retail - logistique, Polytech Lille, October 2019

10.3.1. Internal or external Inria responsibilities

- Frédéric Semet, 30 minutes de sciences, Inria Lille Nord Europe, April 2019

MATHERIALS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

E. Cancès

- has been director (until August 2019) and is now co-director (starting September 2019) of CER-MICS, the Applied Mathematics department at École des Ponts,

- is a member of the editorial boards of Mathematical Modelling and Numerical Analysis (2006-), SIAM Journal of Scientific Computing (2008-), SIAM Multiscale Modeling and Simulation (2012-), and the Journal of Computational Mathematics (2017-),

- has co-organized the 4th international conference on Mathematical and Numerical Analysis of Electronic Structure Models (Suzhou, China, June), an interdisciplinary summer school on Mathematical Methods for Molecular Simulation at Jussieu (Paris, June), a series of minisymposia at ICIAM 2019 (Valencia, Spain, July), and the FSMP Horizon Maths 2019 conference (Paris, December).

V. Ehrlacher

- is a member of the "Conseil d'Enseignement et de Recherche" of Ecole des Ponts,

- co-organizes the colloquium of the CERMICS lab,

- co-organized a minisymposium at the ICIAM conference in Valencia, July.

C. Le Bris is a managing editor of Networks and Heterogeneous Media. He is a member of the editorial boards of Annales mathématiques du Québec (2013-), Archive for Rational Mechanics and Analysis (2004-), Calcolo (2019-), COCV (Control, Optimization and Calculus of Variations) (2003-), Mathematics in Action (2008-), Nonlinearity (2005-), Journal de Mathématiques Pures et Appliquées (2009-), Pure and Applied Analysis (2018-). He is a member of the editorial boards of the monograph series Mathématiques & Applications, Series, Springer (2008-), Modelling, Simulations and Applications, Series, Springer (2009-), Springer Monographs in Mathematics, Springer (2016-). He is a member of

- the "Conseil de la Faculté des sciences et ingénierie", Sorbonne Université,

- the "Conseil scientifique" of SMAI.

He is the president of the scientific advisory board of the Institut des Sciences du calcul et des données, Sorbonne Université. He holds a regular position of Visiting Professor at the University of Chicago.

T. Lelièvre

- is editor-in-chief of ESAIM: Proceedings and Surveys (with D. Chafai, C. Imbert and P. Lafitte),

- is a member of the editorial boards of IMA: Journal of Numerical Analysis, SIAM/ASA Journal of Uncertainty Quantification, Communications in Mathematical Sciences and Journal of Computational Physics,

- is a member of the "Conseil d'Administration" of SMAI and École des Ponts,

- has co-organized the CECAM workshop "Learning the collective variables of biomolecular processes" at Inria Paris July 10-12th 2019 (with L. Delemotte, J. Hénin and G. Stock),

- has co-organized the ICL/CNRS workshop on "Interacting Particle Systems and applications" at Imperial College of London, December 9-10th 2019 (with G. Pavliotis),

- holds a visiting professorship position at Imperial College of London (from August 2019).

F. Legoll

- is a member of the editorial board of SIAM MMS (2012-) and of ESAIM: Proceedings and Surveys (2012-),
- is a member of the ANR committee CES-40 "Mathématiques et informatique",
- has co-organized, with U. Hetmaniuk (U. of Washington, USA), the mini-symposium "Multiscale and domain decomposition approaches for PDEs with rough coefficients" within the SIAM CSE 2019 conference (Spokane, USA, February),
- has co-organized, with C. Le Bris, the mini-symposium "Computational approaches for multiscale, possibly random problems" within the ICIAM 2019 conference (Valencia, Spain, July).

A. Levitt co-organises the applied mathematics seminar of the CERMICS lab.

G. Robin

- co-organizes the working group "Machine learning and optimization" of the Labex Bezout (with G. Stoltz, as well as W. Hachel and R. Elie),
- is the president of the group "Jeunes de la Société Française de Statistique" (SFdS).

G. Stoltz

- is a member of the scientific council of UNIT (Université Numérique Ingénierie et Technologie),
- is a member of the "Conseil d'Enseignement et de Recherche" of Ecole des Ponts.

9.2. Teaching - Supervision - Juries

The members of the project-team have taught the following courses.

At École des Ponts 1st year (equivalent to L3):

- Analyse et calcul scientifique, 30h (V. Ehrlacher, O. Gorynina, R. Goudey, A. Lesage, S. Siraj-Dine, G. Stoltz),
- Équations aux dérivées partielles et éléments finis, 15h (F. Legoll, P.-L. Rothé),
- Hydraulique numérique, 15h (S. Boyaval),
- Mécanique quantique, 10h (E. Cancès, A. Levitt),
- Méthodes numériques pour les problèmes en grande dimension, 17h30 (V. Ehrlacher, S. Boyaval),
- Optimisation, 15h, L3 (G. Kemlin, A. Lesage), Outils mathématiques pour l'ingénieur, 15h (E. Cancès, G. Ferré, F. Legoll, T. Lelièvre, P-L. Rothé),
- Projet de première année, 15h (G. Ferré).

At École des Ponts 2nd year (equivalent to M1):

- Analyse de Fourier, 15h (A. Levitt),
- Problèmes d'évolution, 36h (F. Legoll, V. Ehrlacher),
- Contrôle de systèmes dynamiques et équations aux dérivées partielles, 18h (E. Cancès),
- Projet du département IMI, 12h (G. Ferré, M. Ramil, J. Roussel, L. Silva Lopes),
- Projets Modéliser Programmer Simuler (V. Ehrlacher, G. Robin),
- Statistics and data sciences, 24h (G. Stoltz),
- Techniques de développement logiciel, 18h (M. Herbst).

At École des Ponts 3rd year (equivalent to M2):

- Méthodes de quantification des incertitudes en ingénierie, 18h (V. Ehrlacher),
- Remise à niveau: outils mathématiques, 9h (A. Lesage).

At the M2 "Mathématiques de la modélisation" of Sorbonne Université:

- Introduction à la physique statistique computationnelle, 20h (G. Stoltz),
- Méthodes numériques probabilistes, 24h (T. Lelièvre),
- Problèmes multiéchelles, aspects théoriques et numériques, 24h (F. Legoll),
- Théorie spectrale et variationnelle, 10h (E. Cancès).

At other institutions:

- Homogenization theory and multiscale problems, 21h, University of Chicago (C. Le Bris).
- Maths 2, 3h, L3, École des Mines (G. Stoltz),
- Probabilités de 1ère année, 27h, L3, Ecole des Mines (M. Ramil),
- Supervision of M2 projects, Master Mathématiques pour les sciences du vivant (MathSV) Université Paris-Saclay (G. Robin).

The following PhD theses supervised by members of the project-team have been defended:

- Ling-Ling Cao, Mathematical analysis of models of electronic structure for defected materials, Université Paris-Est, École des Ponts, defended on October 29th, 2019, supervised by E. Cancès and G. Stoltz,
- Grégoire Ferré, Large deviations theory in statistical physics: some theoretical and numerical aspects, Université Paris-Est, École des Ponts, defended on November 27th, 2019, supervised by G. Stoltz,
- Pierre-Loik Rothé, Numerical methods for the estimation of fluctuations in multi-scale materials and related problems, Université Paris-Est, École des Ponts, defended on December 12th, 2019, supervised by F. Legoll,
- Laura Silva Lopes, Rare event simulation and applications to biological systems, Université Paris-Est, Ecole des Ponts, defended on December 19th, 2019, supervised by J. Hénin (IBPC) and T. Lelièvre.

The following PhD theses supervised by members of the project-team are ongoing:

- Zineb Belkacemi, thèse CIFRE SANOFI, Machine learning for reaction coordinates in molecular dynamics, Université Paris-Est, since November 2018, supervised by T. Lelièvre and G. Stoltz,
- Robert Benda, Multiscale modeling of functionalized nanotube networks for sensor applications, École Polytechnique, started September 1st, 2018, supervised by E. Cancès and B. Lebental (École Polytechnique),
- Raed Blel, Monte Carlo methods and model reduction, started October 1st, 2018, supervised by V. Ehrlacher and T. Lelièvre,
- Rafaël Coyaud, Méthodes déterministes et stochastiques pour le transport optimal, Université Paris-Est, École des Ponts, started october 2017, supervised by A. Alfonsi (CERMICS), co-supervised by V. Ehrlacher,
- Qiming Du, Mathematical analysis of splitting methods, Ecole Doctorale Sciences Mathématiques de Paris Centre, started September 1st, 2016, supervised by A. Guyader (UPMC) and T. Lelièvre,
- Rémi Goudey, Problèmes d'homogénéisation en présence de défauts, Université Paris-Est, started in September 2019, supervised by C. Le Bris.
- Gaspard Kemlin, Mathematical and numerical analysis for electronic structures, École des Ponts, started September 1st, 2019, supervised by E. Cancès and co-supervised by A. Levitt.
- Adrien Lesage, Multi-scale methods for calculation and optimization of thin structures, started October 1st, 2017, supervised by F. Legoll, co-supervised by V. Ehrlacher and A. Lebée (Ecole des Ponts),
- Mouad Ramil, Metastability for interacting particle systems, started October 1st 2017, supervised by T. Lelièvre and J. Reygner (CERMICS),

- Lise Maurin, Non reversible and adaptive biasing processes for sampling, started 1st October 2018, supervised by T. Lelièvre and J.-P. Piquemal (Sorbonne Université), together with P. Monmarché (Sorbonne Université),

- Idrissa Niakh, Réduction de modèles pour les inégalités variationnelles, Université Paris-Est, École des Ponts, thèse CIFRE EDF, started november 2019, supervised by A. Ern (CERMICS), co-supervised by V. Ehrlacher,

- Inass Sekkat, Large scale Bayesian inference, Université Paris-Est, since March 2018, supervised by G. Stoltz,

- Sami Siraj-Dine, Modélisation mathématique des matériaux 2D, École des Ponts, started October 1st, 2017, supervised by E. Cancès, C. Fermanian and co-supervised by A. Levitt.

Project-team members have participated in the following PhD juries:

- S. Boyaval, PhD of Olivier Ozenda ("Continuous modelisation of suspension rheology and migration processes"), defended at Université Grenoble Alpes in Mars 2019,

- S. Boyaval, PhD of Sofiane Martel ("Numerical and theoretical analysis of invariant measures of scalar stochastic viscous conservation laws"), defended at Ecole des Ponts in December 2019,

- E. Cancès, PhD of Amaury Hayat ("Stabilisation de systèmes hyperboliques non-linéaires en dimension un d'espace"), defended at Sorbonne University in May 2019,

- V. Ehrlacher, PhD of Nadia Jbili ("Design and analysis of optimization schemes for nuclear magnetic resonance"), defended at Université Paris-Dauphine in December 2019,

- V. Ehrlacher, PhD of Charles Paillet ("Nouvelles démarches de réduction de modèles pour le traitement des problèmes à très grand nombre de paramètres"), defended at Ecole Normale Supérieure Paris-Saclay in June 2019,

- F. Legoll, referee for the PhD of Qingqing Feng ("Développement d'une méthode d'éléments finis multi-échelles pour les écoulements incompressibles dans un milieu hétérogène"), defended at École Polytechnique in September 2019,

- T. Lelièvre, referee for the PhD of Augustin Chevallier ("Random walks for estimating densities of states and the volume of convex bodies in high dimensional spaces"), defended at Université Côte d'Azur in April 2019,

- T. Lelièvre, referee for the PhD of Oleg Balabanov ("Randomized linear algebra for model order reduction"), defended at Université Bretagne Loire in October 2019,

- T. Lelièvre, referee for the PhD of Lara Neureither ("Irreversible multi-scale diffusions: time scales and model reduction"), defended at Brandenburgische Technische Universität in November 2019,

- G. Stoltz, referee for the PhD of Nicolas Brosse ("Around the Langevin algorithm in high dimension: extensions and applications"), defended at Ecole polytechnique in June 2019,

- G. Stoltz, PhD thesis of Laurent Laflèche ("Large particle dynamical systems"), defended at Université Paris-Dauphine Université Paris-Dauphine in June 2019,

- G. Stoltz, referee for the PhD of Nada Cvtekovic ("Convergent discretization schemes for transition path theory for diffusion processes"), defended at FU Berlin in Fall 2019,

- G. Stoltz, referee for the PhD of Nadia Jbili ("Design and analysis of optimization schemes for nuclear magnetic resonance"), defended at Université Paris-Dauphine in December 2019.

Project-team members have participated in the following habilitation juries:

- S. Boyaval, HdR of Sophie Ricci ("Uncertainties quantification and reduction in the computational geosciences – Application to free-surface hydraulics"), defended at CERFACS in April 2019,

- T. Lelièvre, president of the HDR jury of Denis Villemonais ("Exponential convergence to quasistationary distributions and applications"), defended at Université de Lorraine in November 2019.

9.3. Conference participation

Members of the project-team have delivered lectures in the following seminars, workshops and conferences:

- R. Benda, Informal Scientific Discussion (ISD) seminar of LSI laboratory, Ecole Polytechnique, Palaiseau, March,
- S. Boyaval, ICIAM minisymposia, Valencia (Spain), July,
- S. Boyaval, Workshop in computational hydraulics at UM6P, Ben Guerir (Morocco), September,
- S. Boyaval, 19th day of scientific computing and mathematical modelling in Amiens (France), June,
- E. Cancès University of Strasbourg, colloquium of the mathematics department, January,
- E. Cancès, WONAPDE, Conception, Chile, January (plenary lecture),
- E. Cancès, BIRS workhop, Banff, Canada, January,
- E. Cancès, Sorbonne Université, EMC2 seminar, Paris, February,
- E. Cancès, University of Chicago, Computational and applied mathematics seminar, USA, March,
- E. Cancès, ICMS workshop, Edinburgh, United Kingdom, March,
- E. Cancès, Fields Institute workshop, Toronto, Canada, April,
- E. Cancès, CECAM workshop, Lausanne, Switzerland, May,
- E. Cancès, AMMCS, Waterloo, Canada, August (plenary lecture),
- E. Cancès, IMS workshop, Singapore, September,
- E. Cancès, Sorbonne University, ERC EMC2 kick-off meeting, October,
- E. Cancès, Campus des Cordeliers, laboratoire J.-L. Lions 50th anniversary, Paris, November,
- V. Ehrlacher, GAMM meeting (keynote lecture), Vienna, February,
- V. Ehrlacher, Inria-LJLL seminar, Paris, April,
- V. Ehrlacher, Laboratoire Paul Painlevé seminar, Lille, April,
- V. Ehrlacher, Workshop Cambridge-MMCD, Marne-la-Vallée, April,
- V. Ehrlacher, workshop on "Optimal Transport: from Geometry to Numerics", Erwin Schrödinger Institut, Vienna, April,
- V. Ehrlacher, workshop on "Scientific Computing Across Scales: Quantum Systems in Cold-matter Physics and Chemistry", Fields Institut, Toronto, April,
- V. Ehrlacher, ICIAM, Valencia, July,
- V. Ehrlacher, MFO workshop: "Computational Multiscale Methods", Oberwolfach, August,
- V. Ehrlacher, MORTECH, Paris, November,
- G. Ferré, Young researchers' seminar, Université Paris-Dauphine, France, February,
- G. Ferré, Probability seminar at Lille University, France, March,
- G. Ferré, Probability seminar at Marseille University, France, May,
- G. Ferré, Congrès SMAI 2019, Lorient, France, May,
- G. Ferré, Journées de Probabilités, Dourdan, France, June,
- G. Ferré, ICIAM 2019, Valencia, Spain, July,
- G. Ferré, SciCADE 2019, Innsbruck, Austria, July
- G. Ferré, GAMM MoAnSi 2019 meeting, Munich, Germany, September,
- G. Ferré, Probability seminar, University Saint-Quentin en Yvelines, France, November,
- O. Gorynina, Congrès SMAI, Guidel, France, May,
- O. Gorynina, ICIAM 2019 conference, Valencia, Spain, July,
- O. Gorynina, Applied Mathematics Seminar, Surgut State University, Russia, December,

- M. Herbst, Université de Lorraine Laboratoire de Physique et Chimie Théoriques seminar, Metz, May,
- M. Herbst, Université de Lille, Laboratoire de Physique des Lasers, Atomes et Molécules seminar, Lille, May,
- M. Herbst, Technische Universität München, seminar Domcke group, München, September,
- M. Herbst, GAMM moansi annual meeting, München, September,
- M. Herbst, Université Paul Sabatier Toulouse, Laboratoire de Chimie et Physique Quantiques seminar, Toulouse, November,
- G. Kemlin, GAMM - MOANSI meeting, München, Germany, September
- C. Le Bris, ICIAM 2019 Invited speaker, July 2019, Valencia, Spain,
- F. Legoll, University of Chicago, CAMP seminar, Chicago, USA, February,
- F. Legoll, SIAM CSE 2019 conference, Spokane, USA, February,
- F. Legoll, Séminaire "Probabilités, Statistiques, Contrôle", ENSTA, Palaiseau, March,
- F. Legoll, CECAM workshop on "Big data and Uncertainty Quantification", Lausanne, Switzerland, March,
- F. Legoll, Colloque national en calcul des structures 2019, Giens, May,
- F. Legoll, ADMOS 2019 conference, Alicante, Spain, May,
- F. Legoll, Coupled problems 2019 conference, Barcelona, Spain, June,
- F. Legoll, MAFELAP (Mathematics of Finite Elements and Applications) 2019 conference, London, United Kingdom, June,
- F. Legoll, Séminaire du Laboratoire de Mécanique et d'Acoustique, Marseille, June,
- F. Legoll, ICIAM 2019 conference, Valencia, Spain, July,
- F. Legoll, Complas 2019 conference, Barcelona, Spain, September,
- F. Legoll, Workshop on "New trends in asymptotic methods for multiscale PDEs", Karlstad, Sweden, October,
- F. Legoll, MORTech 2019 workshop, Paris, November,
- T. Lelièvre, LIA CNRS - UIUC Meeting, Hauteluce, January,
- T. Lelièvre, Séminaire LPCT, Nancy, February,
- T. Lelièvre, Computational and Applied Mathematics / PDE seminar, University of Chicago, February,
- T. Lelièvre, CECAM Workshop, CIB-EPFL, Lausanne, Switzerland, March,
- T. Lelièvre, CECAM Workshop, CIB-EPFL, Lausanne, Switzerland, May,
- T. Lelièvre, CNLS Seminar, Los Alamos National Laboratory, USA, June,
- T. Lelièvre, IPAM, Lake Arrowhead, USA, June,
- T. Lelièvre, CECAM Workshop, Paris, July,
- T. Lelièvre, ICIAM, Valencia, Spain, July,
- T. Lelièvre, HetSys launch event, Warwick, England, September,
- T. Lelièvre, Numerical analysis in Bielefeld, Germany, September,
- T. Lelièvre, ANR QuAMProcs, Bordeaux, November,
- T. Lelièvre, AMMP Colloquium, Imperial College London, November,
- T. Lelièvre, "Fluids and Materials" seminar, Bristol, England, November,
- T. Lelièvre, Newton Institute, Cambridge, England, November,
- T. Lelièvre, Materials Research Society Fall Meeting, Boston, USA, December,

- A. Lesage, Congrès SMAI, Guidel, France, May,
- A. Lesage, ICIAM 2019 conference, Valencia, Spain, July,
- A. Levitt, BIRS workhop, Banff, Canada, January,
- A. Levitt, mathematical physics seminar, Copenhagen, February
- A. Levitt, Workshop Cambridge-MMCD, Marne-la-Vallée, April,
- A. Levitt, Congrès SMAI, Guidel, France, May,
- A. Levitt, Precision quantification in density functional theory, Louvain, Belgique, May,
- A. Levitt, Numerical Analysis of Electronic Structure Models, Suzhou, China, June,
- A. Levitt, ICIAM 2019 conference, Valencia, Spain, July,
- A. Levitt, GAMM - MOANSI meeting, München, Germany, September ,
- A. Levitt, weekly seminar, Aachen, Germany, October,
- A. Levitt, lunchtime seminar, Warwick UK, November,
- A. Levitt, Julia Meetup, Paris, December,
- G. Robin, seminar IACM, FORTH, Heraklion, October,
- G. Robin, seminar "Systèmes Complexes", CAMS, EHESS, November,
- P.-L. Rothé, Arbeitsgemeinschaft Applied Analysis, Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany, April,
- P.-L. Rothé, Groupe de travail des thésards du Laboratoire Jacques-Louis Lions, Paris, May,
- P.-L. Rothé, Congrès SMAI, Guidel, France, May,
- P.-L. Rothé, ADMOS 2019 conference, Alicante, Spain, May,
- P.-L. Rothé, ICIAM 2019 conference, Valencia, Spain, July,
- P.-L. Rothé, Journée "Approches probabilistes en mécanique" de la Fédération Francilienne de Mécanique (F2M), Paris, November,
- L. Silva Lopes, LIA CNRS - UIUC annual Meeting, Hauteluce, France, January,
- L. Silva Lopes, Lorentz Workshop, Leiden, Netherlands, March,
- L. Silva Lopes, IPAM, Lakearrowhead, USA, June,
- L. Silva Lopes, ICIAM, Valencia, Spain, July,
- L. Silva Lopes, MOANSI annual meeting, Munich, Germany, October,
- G. Stoltz, Mathematical Physics Seminar, Institut Henri Poincaré, March,
- G. Stoltz, CECAM workshop "Microscopic simulations: forecasting the next two decades", Toulouse, France, April,
- G. Stoltz, Workshop Cambridge/Labex MMCD, Champs-sur-Marne, France, April,
- G. Stoltz, CIB workshop "Computational mathematics for model reduction and predictive modelling in molecular and complex systems", Lausanne, Switzerland, May,
- G. Stoltz, MAP5 Colloquium, Université Paris Descartes, June,
- G. Stoltz, Rencontres prospectives RFCT, Nantes, France, June,
- G. Stoltz, Maths/chemistry seminar EMC2, Sorbonne-Université, June,
- G. Stoltz, DEFI/MEDISIM/POEMS seminar, Inria Saclay, July,
- G. Stoltz, ICIAM 2019, Valencia, Spain, July,
- G. Stoltz, SciCADE 2019, Innsbruck, Austria, July,
- G. Stoltz, seminar CEREMADE, Université Paris-Dauphine, October,
- G. Stoltz, Applied PDEs seminar, Imperial College London, October,
- G. Stoltz, QuAMProcs meeting, Bordeaux, France, November.

Members of the project-team have delivered the following series of lectures:

- M. Herbst, Introduction to the Julia programming language, 6h, Julia Day, Paris, December,
- A. Levitt, Complex analysis and applications in quantum physics and chemistry, 9h, GDR CORREL spring school, Paris, April,
- G. Stoltz, Sampling high-dimensional probability distributions and Bayesian learning, 6h, doctoral school UM6P, Morocco, November,

Members of the project-team have presented posters in the following seminars, workshops and international conferences:

- R. Benda, Ab Init School, CEA Bruyères-Le-Châtel (DAM), January.
- R. Benda, Journées Théorie, Modélisation et Simulations (JTMS) , Institut de Biologie Physico-chimique (IBPC), Paris, June.
- R. Benda, PhD day LPICM, Ecole Polytechnique, Palaiseau, April.
- R. Benda, LPICM Congress, Cap Ferret, October.
- R. Benda, GDR Graphene, Graphene & Co Meeting 2019, Bad Herrenalb, Germany, October.
- M. Herbst, 9th Molecular Quantum Mechanics Conference, Heidelberg, Germany, July,
- G. Ferré, CIB-CECAM meeting, Lausanne, Switzerland, May
- A. Lesage, Workshop "New trends and challenges in the mathematics of optimal design", Cambridge, United Kingdom, June,
- G. Robin, doctoral school UM6P, Morocco, November,
- L. Silva Lopes, GRC Liquids in Complex Environments, Driving Reactions, Assembling and Pushed to Their Limits, Holderness, USA, August,

Members of the team have benefited from long-term stays in institutions abroad:

- T. Lelièvre, University of Chicago, USA, February 2019 (three weeks),

Members of the project-team have participated (without giving talks nor presenting posters) in the following seminars, workshops and international conferences:

- R. Benda, Mini-school on mathematics for theoretical chemistry and physics, Paris, June,
- O. Gorynina, Oberwolfach summer school "Beyond Numerical Homogenization", Oberwolfach, Germany, June,
- M. Herbst, Mini-school on mathematics for theoretical chemistry and physics, Paris, June
- M. Herbst, Kick-off meeting extreme-scale mathematically-based computational chemistry, Paris, October,
- G. Kemlin, Mini-school on mathematics for theoretical chemistry and physics, Paris, June,
- G. Kemlin, Une giornata con Alessio - Quelques mathématiques autour d'Alessio Figali, Saclay, July,
- G. Kemlin, Kick-off meeting of the ERC project EMC2, Paris, October,
- G. Kemlin, Laboratoire J.-L. Lions 50th anniversary, Paris, November,
- G. Kemlin, Horizon Maths 2019 - Mathématiques et Chimie, Paris, December
- M. Ramil, ANR QuAMProcs, Bordeaux, November 2019,
- P.-L. Rothé, Workshop "Industrial problems solving", Montréal, Canada, August,
- L. Silva Lopes, CECAM Workshop, Paris, France July 2019,
- S. Siraj-Dine, Quantum Transport and Universality, Accademia Nazionale dei Lincei, September,

9.4. Popularization

9.4.1. Internal or external Inria responsibilities

- A. Levitt is a member of the editorial board of Interstices, Inria's popularization website,
- C. Le Bris has presented the project-team at "Mon équipe en 180 secondes", on November 7, 2019.

9.4.2. Articles and contents

- V. Ehrlacher has been interviewed for the online magazine "DigiSchool"
- G. Robin has been interviewed for the online magazine "Usbek et Rica" following her "L'Oréal-UNESCO For Women in Science" prize

9.4.3. Internal actions

- C. Le Bris has organized a research day for the students at École des Ponts on November 6, 2019.
- V. Ehrlacher has participated to a meeting "Mathématiques, nom féminin?" organized at Ecole des Ponts with pupils from middle school.

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MATHRISK Project-Team

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10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- A. Alfonsi

    Co-organizer of the working group seminar of MathRisk "Méthodes stochastiques et finance". http://cermics.enpc.fr/~alfonsi/GTMSF.html

- V. Bally

    Organizer of the seminar of the LAMA laboratory of Université Paris-Est.

- A. Sulem

    Co-organizer of the seminar Inria-MathRisk /Université Paris Diderot LPSM "Numerical probability and mathematical finance". https://www.lpsm.paris/mathfipronum/gt

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- B. Jourdain

    Associate editor of:

    – ESAIM : Proceedings and Surveys

    – Stochastic Processes and their Applications (SPA)

- D. Lamberton

    Associate editor of:

    – Mathematical Finance,

    – Associate editor of ESAIM Probability & Statistics

- A. Sulem

    Associate editor of:

    – Journal of Mathematical Analysis and Applications (JMAA)

    – International Journal of Stochastic Analysis (IJSA)

    – SIAM Journal on Financial Mathematics (SIFIN)

10.1.2.2. Reviewer - Reviewing Activities

- B. Jourdain: Reviewer for *Mathematical Reviews*
- A. Sulem: Reviewer for *Mathematical Reviews*

10.1.3. Invited Talks

- Aurélien Alfonsi

    – 4th of April, 2019: "Lifted and Geometric Differentiability of the Squared Quadratic Wasserstein Distance", Séminaire MAD-Stat, Toulouse School of Economics.

    – 16th of May, 2019: "Approximation of OT problems with marginal moments contraints", Séminaire de probabilités et mathématiques financières, Evry.

- 20th of June, 2019: "A generic construction for high order approximation schemes of semigroups using random grids", Mathematical and Computational Finance Seminar, Oxford.
- 27th of September, 2019: "A generic construction for high order approximation schemes of semigroups using random grids", Séminaire Bachelier.
- 24th of October, 2019: "A generic construction for high order approximation schemes of semigroups using random grids", GT Finance mathématique, probabilités numériques et statistique des processus, LPSM.

- Vlad Bally
  - The 22nd Conference of the Romanian Society of Probability and Statistics, Bucharest, May 10-11, Talk "Convergence in the CLT in distribution norms"
  - Analyse stochastique et thèmes connexes. 6-9 mai 2019, Bucarest, Roumanie. Talk "Regularity and estimates for the function solution of the 2D Bolzmann equation"
  - Perturbation Techniques in Stochastic Analysis and its Applications. Luminy 11-15 March. Talk "Regularity and estimates for the function solution of the 2D Bolzmann equation"
  - Conference Unirandom on random nodal sets, Rennes 9-13 September.
  - Conference on asymptotic expansions and Malliavin calculus. Talk:"Regularization lemmas and convergence in total variation".

- Benjamin Jourdain
  - Vienna Seminar in Mathematical Finance and Probability, 10 October 2019 : Differentiability of the squared quadratic Wasserstein distance
  - Inria-CWI workshop, Amsterdam, 17-18 September 2019 : Sampling of probability measures in the convex order and computation of robust option price bounds
  - MCMC 2019, Sydney, 8-12 July 2019 : Weak error analysis for some mean-field SDEs
  - Nine talks on contemporary optimal transport problems, Strasbourg, 4-5 July 2019: The inverse transform martingale coupling
  - 9th general AMAMEF conference, Paris, 11-14 June 2019 : The inverse transform martingale coupling
  - Nancy probability and statistics seminar, 9 May 2019 : A new family of martingale couplings in dimension one
  - Conference Perturbation Techniques in Stochastic Analalysis and its Applications, Marseille 11-15 March 2019 : 3h lectures entitled Stochastic Differential Equations with mean-field rank-based coefficients

- Agnès Sulem
  - Conference on Stochastic Analysis and Applications Risør, Norway, August 26-30 2019. *Nonlinear pricing in incomplete markets with default*.
  - Complex Networks 2919, December 10-12, 2019, Lisbon. (Conference with referee process), *A Dynamic Contagion Risk Model With Recovery Features*.

10.1.4. Research Administration

- A. Alfonsi
  - Deputy director of CERMICS laboratory until August,
  - Director of the CERMICS since September.
  - In charge of the Master "Finance and Data" at the Ecole des Ponts.

- V. Bally
  - Member of the LAMA committee

  – Responsible of the Master 2, option finance.
- Benjamin Jourdain
  – Head of the doctoral school MSTIC, University Paris-Est until February 2019
- D. Lamberton
  – Vice-president for research at Université Paris-Est Marne-la-Vallée
- A. Sulem
  – Member of the Scientific Committee of AMIES
  – Corresponding member of the Operational Committee for the assesment of Legal and Ethical risks (COERLE) at Inria Paris research center
  – Member of the Committee for Inria international Chairs

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence :

- A. Alfonsi: "Probabilités", first year course at Ecole des Ponts.
- V. Bally : "Analyse Hilbertienne", Course L3, UPEMLV

Master :

- Aurélien Alfonsi

- "Données Haute Fréquence en finance", lecture for the Master at UPEMLV.
- "Mesures de risque", Master course of UPEMLV and Sorbonne Université.
- Professeur chargé de cours at Ecole Polytechnique.

- Vlad Bally

- "Taux d'Intêret", M2 Finance.
- "Calcul de Malliavin et applications en finance", M2 Finance
- "Analyse du risque" M2 Actuariat,
- "Processus Stochastiques" M2 Recherche

- Benjamin Jourdain

- course "Mathematical finance", 2nd year ENPC
- course "Monte-Carlo Markov chain methods and particle algorithms", Research Master Probabilités et Modèles Aléatoires, Sorbonne Université

- B. Jourdain, B. Lapeyre

- course "Monte-Carlo methods", 3rd year ENPC and Research Master Mathématiques et Application, university of Marne-la-Vallée

- J.-F. Delmas, B.Jourdain

- course "Jump processes with applications to energy markets", 3rd year ENPC and Research Master Mathématiques et Application, University of Marne-la-Vallée

- D. Lamberton

- "Calcul stochastique pour la finance", master 1 course, Université Paris-Est Marne-la-Vallée

- B. Lapeyre

- Monte-Carlo methods in quantitative finance, Master of Mathematics, University of Luxembourg,

- A. Sulem
  - "PDE methods in Finance", Master of Mathematics, University of Luxembourg, 22 h lectures and responsible of the module "Numerical Methods in Finance".

10.2.2. Supervision

- PhD: Rui Chen, "Dynamic Optimal Control for Distress in Large Financial Networks and Mean field Systems with Jumps", Université Paris-Dauphine, defended on July 19th 2019, Supervisor: Agnès Sulem [10].
- PhD in progress :
  - Anas Bentaleb (started February 2018) : Mathematical techniques for expected exposure evaluation, Supervisor: B. Lapeyre.
  - Adel Cherchali, "Numerical methods for the ALM", funded by Fondation AXA, started in September 2017, Supervisor: Aurélien Alfonsi
  - Rafaël Coyaud, "Deterministic ans stochastic numerical methods for multimarginal and martingale constraint optimal transport problems", started in October 2017, Supervisor: Aurélien Alfonsi
  - Oumaima Bencheikh (started November 2017) "Acceleration of probabilistic particle methods", supervised by B.Jourdain
  - Ezechiel Kahn (started September 2018) "Functional inequalities for random matrices models", supervised by B. Jourdain and D. Chafai
  - Sophian Mehalla (started November 2017), CIFRE agreement Milliman company/Ecole des Ponts (http://fr.milliman.com, Supervisor: B. Lapeyre
  - William Margheriti (started January 2018) "Numerical methods for martingale optimal transport problems", supervised by J.-F. Delmas and B. Jourdain

10.2.3. Juries

- Aurélien Alfonsi:
  - Report and jury of the PhD thesis of Rui Chen, July 19, Paris Dauphine.
  - Report and jury of the PhD thesis of Babacar Diallo, December 9, Evry University.
- Benjamin Jourdain:
  - Report and jury of the PhD of Yating Liu, defended on December 3, Sorbonne University
  - PhD of Victor Marx, defended on October 25, University Nice Côte d'Azur
  - PhD of Nicolas Thomas, defended on June 20, Sorbonne University
- Agnès Sulem:
  - Report and jury of the HdR thesis *"Gestion optimale de Portefeuille: Du contrôle Sensible au Risque, à la Finance Comportementale et à la Science des Données* Sebastien Lleo, CNAM, Paris, 4 February 2019
  - PhD of Cyril Benezet, defended on 5 November 2019, LPSM, Université Paris-Diderot, (Chair of the Committee)
  - Member of the Committee for the recruitment of a Professor in applied mathematics, finance and numerical probability, Laboratoire de probabilités (LPSM), Université Paris-Diderot, Spring 2019.

<p align="center">**MCTAO Project-Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- J.-B. Caillau has been chair (with Didier Auroux, Castor team) of the 19th French-German-Swiss conference, held in Nice from September 17 to 19, 2019. The conference gathered around 150 researchers in optimization. More information on fgs-2019.sciencesconf.org
- L. Giraldi together with M. Chaves (Biocore) organized an invited session at the Conf. Decision and Control (Nice, France).

10.1.1.2. Member of the Organizing Committees

J.-B. Caillau has been member of the organizing committee of PGMO days held in Paris Saclay from December 3 to 4, 2019.

10.1.2. Journal

10.1.2.1. Reviewer - Reviewing Activities

The team members are regular reviewers for the leading journal in control (SIAM J. Control, ESAIM COCV...) and, more generally, for journals of pure and applied mathematics.

10.1.3. Invited Talks

- L. Rifford gave a plenary talk at the *2nd International Conference of Mathematics in Erbil* (Iraq), .
- L. Rifford was a keynote speaker at the *1st International MIPAnet Conference on Science and Mathematics* (Parapat, Indonesia), .
- L. Rifford gave a talk during the workshop *Real and Complex Singularities in Cargèse* at the IESC (Cargèse, France). .
- B. Bonnard gave the seminar *"Techniques Géométriques pour le Contrôle Optimal des Réacteurs Chimiques"* at the Department of Mathemathics of the Université de Genève, October 2019.
- L. Dell'Elce was a keynote speaker at the *4th International Workshop on Key topics in orbit Propagation Applied to Space Situational Awareness* (Logrono, Spain), .
- L. Dell'Elce gave the seminar *"Multi-Phase Averaging of Time-Optimal Low-Thrust Transfers"* at the Surrey Space Center in the Universitéy of Surrey, Octobre 19.
- J.-B. Caillau gave an invited talk at the *Learning week* if Air France, in Sophia Antipolis, December 2019.

10.1.4. Scientific Expertise

L. Giraldi is reviewer for DFG the Deutsche Forschungsgemeinschaft (German Research Foundation).

10.1.5. Research Administration

J.-B. Caillau is

- member of the Scientific Council of CNRS GdR Calcul Scientifique
- member of the Scientific Council of Programme Gaspard Monge pour l'Optimisation (PGMO)
- member of the Scientific Council of Institut de Mécanique Céleste et de Calcul des Ephémérides (Observatoire de Paris)
- member of the Scientific Council of 3IA

Jean-Baptiste Pomet is

- a member of the steering committee of the Center for Planetary Origin (C4PO),
- a member of the scientific council of Académie 2 "Complex system", both for Université Côte d'Azur (UCA),
- an elected member of Commission d'Évaluation (Inria permanent evaluation committee).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master in Astrophysics Université Côte Azur (MAUCA): Lamberto Dell'Elce, Build a Nanosatellite (Attitude Determination and Control System), 6 hours TH, niveau M1, Université Côte Azur, France.

Engineering school: J.-B. Caillau has a full teaching duty of Professor at L3, M1 and M2 level of the Applied Math. department of Polytech Nice Sophia. (He is the head of the department since September 2018.)

Licence : L. Giraldi, Colles de mathématiques, 90h (2h en MPSI et 2h en MP par semaine), MPSI-MP, Lycée internationale de Valbonne, France.

Master : L. Giraldi, Natation à bas nombre de Reynolds, 6h, Master 2 Recherche, Université de Srasbourg, France.

10.2.2. Supervision

PhD in progress : Sébastien Fueyo, "Testing stability of nonlinear amplifier by frequency-domain methods", started October, 2016, co-supervised by J.-B. Pomet and L. Baratchart (FACTAS team).

PhD in progress : Yacine El alaoui-faris, "modeling magnetico-elastic micro-robot from theory to experiment", started October, 2017, co-supervised by L. Giraldi, J.-B. Pomet and Stephane Régnier (Univ. Paris Sorbonne).

PhD in progress : Clément Moreau, "Contrôlabilité de systèmes en dimension finie ou infinie issus du vivant", started September, 2017, co-supervised by L. Giraldi, Pierre Lissy and J.-B. Pomet.

PhD in progress : Agustín Yabo, "Optimal control of microbial cells", started October, 2018, co-supervised by J.-L. Gouzé (Biocore team) and J.-B. Caillau.

10.2.3. Juries

L. Giraldi is member of the jury of agrégation de mathématiques.

L. Giraldi was examiner of the PhD Thesis of Fatima Tani (supervised by A. Rapaport).

J.-B. Pomet sat in the jury for Armand Koenig's PhD (Université côte d'Azur).

J.-B. Caillau sat in the PhD jury of Isabelle Santos (Toulouse), HDR jury of Max Cerf (Paris). He is member of the jury of agrégation de mathématiques.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

J.-B. Caillau belongs to the MASTIC initiative at Inria Sophia.

10.3.2. Interventions

Lamberto Dell'Elce is involved in the PoBot challenge promoted by MEDITES. Specifically he supervises a class in the College Emile Roux in Cannes.

J.-B. Caillau has given several talks at high-school level in Nice and Sophia on application of mathematics in social choice.

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MEMPHIS Project-Team

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10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Reviewer - Reviewing Activities

Journal of Computational Physics, International Journal of CFD, Journal of Non-linear Analysis B, ASME Journal of Computational and Nonlinear Dynamics, Journal of Fluid Mechanics, Acta Mechanica, AIAA Journal, International Journal Numerical Methods in Fluids, Computers & Fluids, Journal of Engineering Mathematics, European Journal of Mechanics / B Fluids, Journal Européen de Systèmes Automatisés, Applied Mathematics and Computation. Nuclear Science and Engineering, Computer Methods in Applied Mechanics and Engineering, Journal of Theoretical Biology, Computational Optimization and Applications, Applied science, Meccanica, SIAM journal on scientific computing, SIAM journal on uncertainty quantification, Advances in Computational Mathematics.

10.1.2. Invited Talks

Angelo Iollo

1. June 5th, 2019. Journées scientifiques Inria, Lyon.

   https://project.inria.fr/journeesscientifiques2019/francais-programme/.

2. May 2019. CIMPA School, Tunis. Science des données pour l'ingénierie et la technologie.

   https://www.cimpa.info/fr/node/6217.

3. March 2019. Conférencier invité à la conférence « Fluid-structure interaction», Politecnico di Milano, Milano, 18/3-20/3/2019.

   http://www1.mate.polimi.it/ gazzola/fs.html.

Tommaso Taddei

1. November 2019. MORTECH 2019, Paris.

   https://mortech2019.sciencesconf.org/

10.1.3. Leadership within the Scientific Community

10.1.3.1. Scientific Expertise

Angelo Iollo is an expert for the European Union for the program FET OPEN.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Four members of the team are Professors or Assistant Professors at Bordeaux University and have teaching duties, which consist in courses and practical exercises in numerical analysis and scientific computing. Michel Bergmann (CR) also teaches around 64 hours per year (practical exercises in programming for scientific computing). Tommaso Taddei (CR) also teaches around 50 hours per year (practical exercises in numerical analysis and scientific computing).

10.2.2. Supervision

1. 2019-2022. Giulia Sambataro. Bourse ANDRA. *Component-based reduction strategies for THM equations.* Advisors: Angelo Iollo, Tommaso Taddei.

2. 2018-2021. Michele Giuliano Carlino. Bourse Inria. *Fluid-structure models on Chimera grids.* Advisors: Michel Bergmann, Angelo Iollo.

3. 2018-2021. Antoine Fondanèche. Bourse UB. *Monolithic fluid-structure modeles on parallel hierarchical grids.* Advisors: Michel Bergmann, Angelo Iollo.

4. 2017-2020. Sebastien Riffaud. *Convergence between data and numerical models.* Advisor: Angelo Iollo.

5. 2017-2020. Luis Ramos Benetti. Bourse ERC Aeroflex (O. Marquet, ONERA). *Monolithic fluid-structure modeles on parallel hierarchical grids.* Advisors: Michel Bergmann, Angelo Iollo.

10.2.3. Juries

Angeo Iollo: reviewer of 3 PhD theses, president of one PhD jury, member of one PhD jury, in France and abroad.
Michel Bergmann: reviewer of 2 PhD theses.

MEPHYSTO Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events: Organisation

7.1.1.1. Member of the Organizing Committees

A. de Laire co-organized the "Journée des Doctorants en Mathématiques du Nord-Pas-de-Calais".

7.1.2. Journal

7.1.2.1. Member of the Editorial Boards

S. De Bièvre is Associate Editor of the Journal of Mathematical Physics since January 2019.

7.1.2.2. Reviewer - Reviewing Activities

M. Simon is reviewer for the main international peer-reviewed journals in probability and statistical physics. In 2019, G. Dujardin served as a reviewer for the numerical analysis journals ESAIM:M2AN, Numerische Mathematik and IMA Journal of Numerical Analysis.

7.1.3. Invited Talks

M. Simon has been invited speaker at several conferences, among them:

- *Interactions PDEs/Probability: particle systems, hyperbolic conservation laws*, CIRM, Marseille
- *1st SFB International Workshop Taming Complexity in Partial Differential Systems*, University of Vienna, Austria

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Licence: A. de Laire, Mathématiques fondamentales 1, 54 TD, L1, Université de Lille

Licence: G. Dujardin, Calcul différentiel et intégral, 60h, BA2, Université Libre de Bruxelles, Belgium.

Master: A. de Laire, "Etude de Problèmes Elliptiques", 60h, M1, Université de Lille

Master: A. Hardy, "Probabilité, modèles et applications" 60h, M1, Université de Lille

Master: A. Hardy, "Séries temporelles", 30h, M1, Université de Lille

Master: M. Simon, "Introduction à la physique statistique", 56h, M2, Université de Lille

Master: M. Simon, "Markov Chains and Applications", Université de Lille and École Centrale Lille

In addition, A. de Laire is in charge of the Master 2 of Applied Mathematics at Université de Lille.

7.2.2. Supervision

PhD: P. Mennuni, "Ondes progressives de l'équation de Gross–Pitaevskii non locale : analyse et simulations", Université de Lille, defended on the November 4, 2019; advisors: S. De Bièvre, A. de Laire, G. Dujardin.

7.3. Popularization

7.3.1. Interventions

M. Simon participated in the programs "Chercheurs itinérants" and "Fête de la Science", and gave several lectures aimed at high-school students.

MINGUS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

- F. Castella organized the MINGuS team meeting, Dinard, december 2019. [15 participants]
- P. Chartier, N. Crouseilles, M. Lemou and F. Méhats organized a workshop on "Asymptotic methods and numerical approximations of multi-scale evolution problems, and uncertainty quantification", ENS Rennes, May 2019. [30 participants]
- N. Crouseilles is co-organizer of the weekly seminar "Mathematic and applications" at ENS Rennes.
- P. Chartier and M. Lemou co-organized (with M. Thalhammer, university of Innsbruck) the mini-symposium "Advanced numerical methods for differential equations" in the ICIAM 2019 conference, Valencia, Spain, July 2019.
- F. Méhats co-organized (with W. Bao, National University of Singapore) the mini-symposium "Multiscale methods and analysis for oscillatory PDEs" in the Scicade conference, Innsbruck, Austria, July 2019.

9.1.1.2. Member of the Conference Program Committees

- N. Crouseilles was member of the scientific committee of the SMAI-19 Conference, June 2019.
- E. Faou was member of the scientific committee of the Scicade Conference, July 2019.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- P. Chartier is member of the editorial board of "Mathematical Modelling and Numerical Analysis" (M2AN).
- A. Debussche is editor in chief of Stochastic Partial Differential Equations: analysis and computations (2013-).
- A. Debussche is member of the editorial board of the collection "Mathématiques & Applications".
- A. Debussche is associate editor of Differential and Integral Equations (2002-19).
- A. Debussche is associate editor of Potential Analysis (2011-2019).
- A. Debussche is associate editor of Journal of Evolution Equation (2014-).
- A. Debussche is associate editor of Applied Mathematics & Optimization, SIAM JUQ (2016-2019).
- M. Lemou is member of the editorial committee of "Communications in Mathematical Sciences" (CMS).

9.1.2.2. Reviewer - Reviewing Activities

The members of the MINGuS team are reviewers for almost all the journals in which they publish (SIAM, JCP, CPDE, CMP, ARMA, JSP, JSC, JMAA, ANM, JCAM, NMPDE, Numer. Math., · · ·).

9.1.3. Invited Talks

- J. Bernier gave a talk in the seminar of Columbia university, New York, USA, June 2019.
- P. Chartier gave a talk in the workshop *Nonlinear Evolution Equations: Analysis and Numerics*, organized by M. Hochbruck, H. Koch, S.-J. Oh, and A. Ostermann, Oberwolfach, Germany, February 2019.
- P. Chartier gave a talk in the workshop HaLu, Gran Sasso Science Institute (GSSI) School of Advanced Studies, L'Aquila, Italy, June 2019.
- P. Chartier gave a talk in the ICIAM conference, Valencia, Spain, July 2019.
- P. Chartier gave a talk in the Scicade conference, University of Innsbruck, Austria, July 2019.
- N. Crouseilles gave a talk at the workshop *Quantum and Kinetic Transport*, Shanghai, China, April 2019.
- N. Crouseilles gave a talk in the workshop *Numerical Methods for Multiscale Models arising in Physics and Biology*, University of Nantes, France, June 2019.
- N. Crouseilles gave a talk in the Scicade conference, University of Innsbruck, Austria, July 2019.
- A. Debussche gave a talk in the conference *Partial Differential Equations: from theory to applications*, Nancy, France, March 2019.
- A. Debussche gave a talk in the workshop *Numerical Methods for SPDE: 20 Successful Years and Future Challenges*, Reims, France, June 2019.
- A. Debussche gave a mini-course in the workshop *PROPAL : propagation d'ondes en milieux aléatoires*, Mittag-Leffler Institute, Stockholm, Sweden, May 2019
- A. Debussche gave a talk in the workshop *Recents Trends in Stochastic Analysis and SPDEs*, University of Pisa, Italy, July 2019.
- A. Debussche gave a talk in the workshop *Touch down of Stochastic Analysis*, University of Bielefeld, Germany, September 2019.
- A. Debussche gave a talk in the conference *Challenges and New Perspectives in Mathematics*, Hassan II Academy of Sciences and Technology, Morocco, November 2019.
- A. Debussche gave a talk in the conference *Paths between probability, PDEs and physics*, Imperial College, July 2019.
- E. Faou gave a talk in the workshop *The future of structure-preserving algorithms*, ICMS, Edinburgh, UK, October 2019.
- E. Faou gave a talk in the Analysis seminar, CMS University of Cambridge, UK, October 2019.
- E. Faou gave a talk in the *Plasma day* session, at the Isaac Newton Institute, Cambridge, UK, October 2019.
- E. Faou gave a Colloquium talk at the University of Bielefeld, Germany, April 2019.
- E. Faou gave a talk in the workshop *Dynamics of nonlinear dispersive PDEs*, La Thuile, Italy, February 2019.
- E. Faou gave a talk in the workshop *Nonlinear Evolution Equations: Analysis and Numerics*, organized by M. Hochbruck, H. Koch, S.-J. Oh, and A. Ostermann, Oberwolfach, Germany, February 2019.
- Y. Li gave a talk in the Scicade conference, University of Innsbruck, July 2019.
- Y. Li gave a talk in the NumKin conference, Max Planck Institute, Garching, October 2019.
- M. Lemou gave a talk at the Albert Einstein Institute, Golm, Germany, February 2019.
- M. Lemou gave a talk at the workshop *Quantum and Kinetic Transport*, Shanghai, China, April 2019.
- M. Lemou gave a talk at the university of Cardiff seminar, Cardiff, UK, May 2019.

- M. Lemou gave a talk in the ICIAM conference, Valencia, Spain, July 2019.
- M. Lemou gave a talk in the Scicade conference, Innsbruck, Austria, July 2019.
- M. Lemou gave a talk at the university of Wisconsin seminar, Madison, USA, September 2019.
- M. Lemou gave a talk at the Georgia Tech seminar, Atlanta, USA, September 2019.
- M. Lemou gave a talk in the workshop *Recent Progress and Challenge in Quantum and Kinetic Problems*, Singapore, October 2019.
- J. Massot gave a talk in the NumKin conference, Max Planck Institute, Garching, October 2019.
- F. Méhats gave a talk in the workshop *Recent Progress and Challenge in Quantum and Kinetic Problems*, Singapore, October 2019.
- F. Méhats gave a talk in the NumKin conference, Max Planck Institute, Garching, October 2019.
- P. Navaro participated at the conference JuliaCon 2019, Baltimore, USA, August 2019.
- A. Rosello gave a talk in the conference *Paths between probability, PDEs and physics*, Imperial College, July 2019.

9.1.4. Scientific Expertise

- N. Crouseilles was member of the committee of the Blaise Pascal prize (GAMNI-SMAI), 2019.
- N. Crouseilles was member of the committee of the best PhD talk in the Scicade conference, 2019.
- N. Crouseilles was member of the committee of the expert reviewers for the European Doctoral programme of the University of Innsbruck.
- A. Debussche was reviewer for ERC projects.
- E. Faou was member of the committee of the PhD prize SMAI-GAMNI, 2019. 2019).

9.1.5. Research Administration

- F. Castella is member of the UFR mathématiques council, University Rennes 1.
- N. Crouseilles is responsible of Fédération Recherche Fusion for the University of Rennes I.
- N. Crouseilles is member of the IRMAR laboratory council, University Rennes 1.
- N. Crouseilles is member of the scientific council of ENS Rennes (until september 2019).
- A. Debussche is member of the scientific council of the Fédération Denis Poisson.
- A. Debussche is member of the administrative council of ENS Paris-Saclay.
- A. Debussche is scientific vice-deputy and international relations of ENS Rennes.
- A. Debussche is co-director of the Henri Lebesgue Center (Excellence laboratory of the program investissement d'avenir).
- A. Debussche is vice-head of the Lebesgue agency for Mathematic and Innovation.
- E. Faou is co-director of the Henri Lebesgue Center (Excellence laboratory of the program investissement d'avenir).
- E. Faou is member of the Scientific Council of the Pôle Universitaire Léonard de Vinci.
- M. Lemou is the head of the IRMAR team "Analyse numérique" composed of 48 members.
- M. Lemou is member of the scientific council of ENS Rennes.
- M. Lemou is member of the scientific council of the Henri Lebesgue Center.
- P. Navaro is member of the national network "calcul" http://calcul.math.cnrs.fr. This network is well known for interdisciplinarity of CNRS dedicated to technological aspects of scientific computing (programming, optimization, architectures, $\cdots$).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master :

- F. Castella, Numerical methods for ODEs and PDEs, 60 hours, Master 1, University of Rennes.
- N. Crouseilles, Numerical methods for PDEs, 24 hours, Master 1, ENS Rennes.
- E. Faou, Normal forms, 24 hours, Master 2, University of Rennes.
- M. Lemou, Numerical methods for kinetic equations, 18 hours, Master 2, University of Rennes.
- M. Lemou, elliptic PDEs, 36 hours, Master 1, University of Rennes.
- P. Navaro, Python courses, Master 2 Smart Data, ENSAI.
- P. Navaro, Scientific computing tools for big data, Master 2, University of Rennes.

9.2.2. Supervision

PhD : G. Barrué, Approximation diffusion pour des équations dispersives, University of Rennes I, started in september 2019, A. Debussche.

PhD : J. Bernier, Study of some perturbation of equations which involve symmetries: resonancy and stability, University of Rennes I, defended in july 2019, E. Faou and N. Crouseilles.

PhD : Q. Chauleur, Equation de Vlasov singulière et équations reliées, University of Rennes I, started in september 2019, R. Carles (CNRS, Rennes) and E. Faou.

PhD: Y. Li (Chinese Academy of Sciences), Structure preserving methods for Vlasov equations, march 2019-february 2020, Y. Sun (Chinese Academy of Sciences) and N. Crouseilles.

PhD in progress : J. Massot, Exponential methods for hybrid kinetic models, started in october 2018, N. Crouseilles.

PhD in progress : A. Rosello, Approximation-diffusion pour des équations cinétiques pour les modèles de type spray, started in september 2016, A. Debussche and J. Vovelle (CNRS, Lyon).

PhD in progress : L. Trémant, Asymptotic analysis methods and numerical of dissipative multi-scale models: ODE with central manifold and kinetic models, started in october 2018, P. Chartier and M. Lemou.

9.2.3. Juries

- F. Castella was referee for the PhD thesis of H. Moundoyi (Laboratoire de biologie marine de Roscoff, France), supervised by P. Cormier and B. Sarels.
- F. Castella was referee for the PhD thesis of F. Patout (ENS Lyon, France), supervised by V. Calvez and J. Garnier.
- N. Crouseilles was referee for the PhD thesis of B. Fedele (University Toulouse 3, France), supervised by C. Negulescu and M. Ottaviani (CEA).
- A. Debussche was referee for the PhD of E. Altmann (Sorbonne Université, France), supervised by L. Zambotti.
- A. Debussche was member of the defense committee of the PhD of B. Kouegou Kamen (Aix-Marseille Université, France), supervised by E. Pardoux.
- A. Debussche was referee for the PhD of T. Yeo (Aix-Marseille université, France) supervised by E. Pardoux.
- E. Faou was referee for the Habilitation degree of Karolina Kropielnicka (Univ. Gdansk, Poland).
- M. Lemou was referee of the PhD thesis of X. Li (University Paris-Dauphine, France), supervised by J. Dolbeault.
- F. Méhats was referee of the PhD thesis of T. Dolmaire (university Paris Diderot, France), supervised by L. Desvillettes and I. Gallagher.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- F. Castella was member of the HCERES committee for the evaluation of the laboratory "Mathématiques et Informatique pour la Complexité et les Systèmes (MICS)", CentraleSupelec, Gif-sur-Yvette.
- P. Chartier was member of the hiring committee CR2-Inria (Bordeaux)
- P. Chartier was member of the hiring committee for the Inria promotion DR1-DR0.
- N. Crouseilles is member of the Inria Evaluation Committe (2019-2023).
- N. Crouseilles was member of the Inria hiring committee for the following Inria promotions: CRHC, DR2-DR1, DR1-DR0, DR0-DR02.
- N. Crouseilles is member of the hiring committee of the professor position, ENS Rennes.
- E. Faou was member of the CNU 26 until the summer 2019.
- E. Faou was member of the HCERES committee for the evaluation of the Mathematics Institute of Toulouse, University Paul Sabatier.
- E. Faou is AMIES correspondent (Agency for Interaction in Mathematics with Business and Society) for Inria Rennes Bretagne atlantique and IRMAR.

9.3.2. Interventions

- N. Crouseilles: participation to high school students internship at IRMAR laboratory (one week), June 2019.
- N. Crouseilles: interview by a first year student of University Rennes I (in order to inform the different ways to become Inria researcher).
- J. Massot: talk at the N. Mandela high school (terminal S classes) about the links between astronomy and mathematics, April 2019.
- J. Massot: participation to high school students internship at IRMAR laboratory (one week), June 2019.
- P. Navaro: participation to the Julia day, Lyon, France, January 2019.
- P. Navaro: participation to the Julia day, Nantes, France, June 2019.
- A. Rosello: participation to "MATHC2+", June 2019, ENS Rennes.
- L. Trémant: participation to "Maths en Jean", June 2019, University of Rennes.

9.3.3. Internal action

- J. Massot: writing of a Python library *ponio* (Python Objects for Numerical IntegratOr) https://pypi.org/project/ponio/0.1/
- P. Navaro: Python training at the IRMAR laboratory.
- P. Navaro: Julia training at the IRMAR laboratory.
- P. Navaro: R training at the Finist'R internal workshop, Roscoff, France, August 2019.
- P. Navaro, Python courses, within the exchange program between ENSAI and Hong Kong university.

<p align="center" style="color:red">MISTIS Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

- Stéphane Girard was chairman at the 2nd workshop on Multivariate Data and Software (Limassol, Cyprus) and at the International Workshop on Stress Test and Risk Management (Paris).

10.1.1.2. Member of the Organizing Committees

- Florence Forbes is a member of the scientific committees of the Bayes Comp 2020 conference in Gainesville, Florida, USA (January 2020) and of the Research school on Networks and molecular biology at CIRM in Marseille (March 2020).
- Sophie Achard was a member of the scientific committee of the Wavelet & Sparsity XVIII 2019 in San Diego and the organizer of a special session within this conference.
- Stéphane Girard and Julyan Arbel were members of the organizing committee of the 10th Statlearn international workshop "Challenging problems in Statistical Learning", Grenoble, http://statlearn.sfds.asso.fr. Stéphane Girard also co-organized (with D. Fraix-Burnet, IPAG) the 4th international school Stat4Astro "Variability and Time Series Analysis", Autrans, http://stat4astro2019.sciencesconf.org.
- Julyan Arbel was a member of the scientific committee of *Statistical Methods for Post Genomic Data analysis (SMPGD)*, link. Julyan Arbel organized the session entitled 'Bayesian Machine Learning' at the 12th International Conference of Computational and Methodological Statistics (CMStat), University of London, UK (14-16 December 2019).

Seminars organization

- MISTIS participates in the weekly statistical seminar of Grenoble. Several lecturers have been invited in this context.
- Julyan Arbel is organizing monthly reading group Bayes in Grenoble on Bayesian statistics.

10.1.2. Scientific Events Selection

10.1.2.1. Reviewer

- In 2019, Florence Forbes has been a reviewer for CAP 2019 in Toulouse and for ICDHT 2019 in Tunis.
- In 2019, Julyan Arbel has been a reviewer for the *Bayesian Young Statisticians Meeting proceedings* (BAYSM).
- In 2019, Florence Forbes and Julyan Arbel have been reviewers for the *Research School on Statistics and Data Science* (RSSDS2019).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Stéphane Girard is Associate Editor of the *Statistics and Computing* journal since 2012, Associate Editor of the *Journal of Multivariate Analysis* since 2016 and Associate Editor of *REVSTAT - Statistical Journal* since 2019. He is also member of the Advisory Board of the *Dependence Modelling* journal since December 2014.

- Florence Forbes is Associate Editor of the journal *Frontiers in ICT: Computer Image Analysis* since its creation in Sept. 2014. She is also Associate Editor of the *Computational Statistics and Data Analysis* journal since May 2018.
- Julyan Arbel is Associate Editor of *Bayesian Analysis* (BA) and of Statistics & Probability Letters (SPL) since 2019.
- Julyan Arbel and Florence Forbes are Associate Editors for the *Australian & New Zealand Journal of Statistics* (ANZJS), since 2018.
- Sophie Achard is Associate Editor of *Neural Processing Letters* and *Network Neuroscience* since 2016.

10.1.3.2. Reviewer - Reviewing Activities

- In 2019, Florence Forbes has been a reviewer for *IEEE Transactions on Pattern Analysis and Machine Intelligence* (TPAMI), *Statistics and Computing* (STCO), and *Neural Processing Letters*.
- In 2019, Stéphane Girard has been a reviewer for *Journal of the American Statistical Association* (JASA), *Journal of Statistical Planning and Inference* (JSPI), *Communications in Statistics - Theory and Methods, Spatial Statistics.*
- In 2019, Jean-Baptiste Durand has been a reviewer for *Behavior Research Methods* (BRM) and *Statistics and Computing* (STCO).
- In 2019, Julyan Arbel has been a reviewer for: *Annals of Applied Statistics* (AOAS), *Annales de l'Institut Henri Poincaré, Probabilités et Statistiques* (AIHP), *Bernoulli*, *Biometrika*, *Entropy*, *Journal of the American Statistical Association* (JASA), *Journal of Computational and Graphical Statistics* (JCGS), *Journal of Nonparametric Statistics* (JNS), *Sankhyā*, *Stats*, *Statistica Sinica*, *Statistics and Probability Letters* (SPL), *Stochastic Processes and their Applications* (SPA), *IEEE Transactions on Pattern Analysis and Machine Intelligence* (TPAMI).

10.1.4. Invited Talks

Florence Forbes has been invited to give talks at the following seminars and conferences:

- Glasgow Statistics Department, March 2019
- Conference on Applied Inverse Problems, AIP 2019, July 2019 [34]
- 51ème Journées de la Statistique, Nancy, France, June 2019 [35]
- Workshop on Model-based clustering, Vienna, Austria, July 15-19, [32]
- Research School on Statistics and Data Science, Melbourne, Australia, July 24-26, [33]

Julyan Arbel has been invited to give talks at the following seminars and conferences:

- Applied Inverse Problems conference, Grenoble, France, July 8-12, 2019. Invited talk: Understanding Priors in Bayesian Neural Networks at the Unit Level.
- 11th Workshop on Bayesian Inference in Stochastic Processes (BISP), Madrid, Spain, June 12-14, 2019. Invited talk: Understanding Priors in Bayesian Neural Networks at the Unit Level.
- Workshop on Multivariate Data Analysis, Limassol, Cyprus, April 14-16, 2019. Invited talk: Some distributional properties of Bayesian neural networks.
- Seminar, Laboratoire d'Informatique de Grenoble, Grenoble, France, September 19, 2019. Invited talk: On some theory for Bayesian neural networks.
- Grenoble R User Group, Grenoble, France, April 11, 2019. Invited talk: R Markdown.

Sophie Achard has been invited to give talks at the following seminars and conferences:

- Workshop ATLAS, GDR MADICS, November 2019, Grenoble http://ama.liglab.fr/ATLAS/Wksp-22112019.html. Invited talks: Assessing reliability of resting-state fMRI graph analysis: challenges in measuring brain connectivity networks alterations for clinical applications.
- NeuroSTIC, GDR BioComp et ISIS, October 2019, Nice http://www.gdr-isis.fr/neurostic/?p=452. Invited talks: Brain connectivity for patients with consciousness disorders: statistical and clinical challenges

Stéphane Girard has been invited to give talks at the following seminars and conferences:

- 2nd workshop on Multivariate Data and Software (Limassol, Cyprus) [37],
- Workshop "Appréhender la grande dimension" (Paris) [36],
- Seminar, Nottingham University, UK "Estimation of extreme risk measures based on L_p- quantiles".

Antoine Usseglio-Carleve was invited to give a talk [38] at the 12th International Conference of Computational and Methodological Statistics, London, UK.

Marta Crispino was invited to give a talk [31] at the 12th International Conference of Computational and Methodological Statistics, London, UK.

10.1.5. Scientific Expertise

Florence Forbes is Scientific Advisor since March 2015 for the Pixyl company.

10.1.6. Research Administration

- Stéphane Girard is a member of the "Comité des Emplois Scientifiques" at Inria Grenoble Rhône-Alpes since 2015.
- Since 2015, Stéphane Girard is a member of the INRA committee (CSS MBIA) in charge of evaluating INRA researchers once a year in the MBIA dept of INRA.
- Florence Forbes is a member of the "Comité Développement Technologique" for software development projects at Inria Grenoble Rhône-Alpes since 2015.
- Florence Forbes is a member of the "Comite d'organisation stratégique" of Inria Grenoble Rhône-Alpes since 2017.
- Florence Forbes is a member of the Executive Committee of the Grenoble data institute.
- Florence Forbes has been a member of the Selection committee for assistant professors at Ensimag Grenoble and at Ecole Centrale Lille in 2019.
- Florence Forbes is a member of the advisory committee of the Helmholtz AI Cooperation Unit https://helmholtz.ai/, since 2019.
- Sophie Achard is co-director of pôle MSTIC whithin Université Grenoble Alpes, since 2017.
- Julyan Arbel is a scientific committee member of the Data Science axis of Persyval Labex (Machine learning: fundamentals and applications, and Data linking, sharing and privacy), link, since 2019.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master : Stéphane Girard, *Statistique Inférentielle Avancée*, 18 ETD, M1 level, Ensimag. Grenoble-INP, France.
- PhD course: Julyan Arbel, *Bayesian nonparametrics*, Jyväskylä Summer School, Finland, August 2019, 25 ETD.
- Master and PhD course: Julyan Arbel, *Bayesian statistics*, Ensimag, Université Grenoble Alpes (UGA), 25 ETD.
- Master and PhD course: Julyan Arbel, *Bayesian nonparametric statistics*, Master Mathématiques Apprentissage et Sciences Humaines (M*A*S*H), Université Paris-Dauphine, 25 ETD.
- Master and PhD course: Julyan Arbel, *Bayesian machine learning*, Master Mathématiques Vision et Apprentissage Master MVA, École normale supérieure Paris-Saclay, 36 ETD.
- Master: Jean-Baptiste Durand, *Statistics and probability*, 192H, M1 and M2 levels, Ensimag Grenoble INP, France. Head of the MSIAM M2 program, in charge of the data science track.
- Jean-Baptiste Durand is a faculty member at Ensimag, Grenoble INP.

- Sophie Achard M1 course Théorie des graphes et réseaux sociaux, M1 level, MIASHS, Université Grenoble Alpes (UGA), 14 ETD.

10.2.2. Supervision

- PhD defended: Karina Ashurbekova "*Robust Structure Learning*", December 2019, Sophie Achard and Florence Forbes, Université Grenoble Alpes.

- PhD defended: Brice Olivier "*Joint analysis of eye-movements and EEGs using coupled hidden Markov models*", June 2019, Jean-Baptiste Durand and Anne Guérin-Dugué, Université Grenoble Alpes.

- PhD defended: Chun-Chen Tu,"*Gaussian mixture sub-clustering/reduction refinement of Non-linear high-to-low dimensional mapping*", "Date", Florence Forbes and Naisyin Wang, University of Michigan, Ann Arbor.

- HDR: Julyan Arbel, Université Grenoble Alpes, "*Bayesian Statistical Learning and Applications*" [11], October 2019.

- PhD in progress: Veronica Munoz,"*Extraction de signatures dans les données IRM de patients parkinsoniens de novo*", Florence Forbes and Michel Dojat, Université Grenoble Alpes, started on October 2017.

- PhD in progress: Fabien Boux,"*Développement de méthodes statistiques pour l'imagerie IRM fingerprinting*", Florence Forbes and Emmanuel Barbier, Université Grenoble Alpes, started on October 2017.

- PhD in progress: Benoit Kugler, "*Massive hyperspectral images analysis by inverse regression of physical models*", Florence Forbes and Sylvain Douté, Université Grenoble Alpes, started on October 2018.

- PhD in progress: Mariia Vladimirova, "*Prior specification for Bayesian deep learning models and regularization implications*", started on October 2018, Julyan Arbel and Jakob Verbeek.

- PhD in progress: Aboubacrène Ag Ahmad "*A new location-scale model for heavy-tailed distributions*", started on September 2016, Stéphane Girard and Alio Diop (Université Gaston Berger, Sénégal).

- PhD in progress: Meryem Bousebata "*Bayesian estimation of extreme risk measures: Implication for the insurance of natural disasters*", started on October 2018, Stéphane Girard and Geffroy Enjolras (Université Grenoble Alpes).

- PhD in progress: Alexandre Constantin "*Analyse de séries temporelles massives d'images satellitaires : Applications à la cartographie des écosystèmes*", started on November 2018, Stéphane Girard and Mathieu Fauvel (Université Grenoble Alpes).

- PhD in progress: Daria Bystrova, "*Joint Species Distribution Modeling: Dimension reduction using Bayesian nonparametric priors*", started on October 2019, Julyan Arbel and Wilfried Thuiller.

- PhD in progress: Giovanni Poggiatto , "*Scalable Approaches for Joint Species Distribution Modeling*", started on November 2019, Julyan Arbel and Wilfried Thuiller.

10.2.3. Juries

- Julyan Arbel has been reviewer for the PhD thesis of Romain Mismer, LPSM, Sorbonne Université, Paris.

- Stéphane Girard has been reviewer for the PhD thesis of Maxime Baelde, Université de Lille.

- Stéphane Girard has been the president of the HDR committee of Julie Carreau, Université de Montpellier, and an examinator for the HDR of Julyan Arbel.

- Stéphane Girard has been a member of the PhD committee of Abdul-Fattah Abu-Awwad, Université de Lyon.

- Florence Forbes has been reviewer for the PhD thesis of Lê-Huu D. Khuê, Université Paris Saclay, CentraleSupelec, Cedric Meurée, Université de Rennes, Bao Tuyen Huynh Université de Caen and for the HDR thesis of Christine Keribin, Université Paris Orsay.

- Florence Forbes has been a member of the PhD committee of Charlotte Maugard, Université Grenoble Alpes and Esteban Bautista, ENS Lyon.

- Sophie Achard has been reviewer for the HDR of Julien Modolo, Université Rennes 1.

10.3. Popularization

10.3.1. Interventions

- Sophie Achard has been invited to Festival des Nouvelles Explorations https://nouvellesexplorations. com/.

- Julyan Arbel gave a presentation for ISN conference, March 2019.

MODAL Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Hemant Tyagi and Pascal Germain are the organizers of the MODAL team scientific seminar.
- Sophie Dabo-Niang is the co-organizer of:
  - Session "Recent non-parametric approaches: Applications to envi- ronmental, hydrologi- cal, oceanological and economic data analyzes" of the ISI conference (62nd World Statistics Congress), 18-23, August, 2019, Kuala Lumpur, Malaysia.
  - Session "Modeling dependence through graphical models", CMStatistics, 14-16 December 2019, London.
- Christophe Biernacki is a co-organizer (and the chair) of the special session on co-clustering called "Co-clustering: model-based or model-free approaches" at the 62nd ISI World Statistics Congress 2019 in Malaysia [45]
- Alain Celisse is the organizer and the chair of two sessions on change-points detection and early stopping rules at ERCIM 2019, London.
- Vincent Vandewalle organized a session on Model-based and multivariate functional data at CRoNoS & MDA 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Sophie Dabo-Niang was a member of the scientific program committee of: CRONOS-MDA2019, 14-16 April 2019, Limassol, Cyprus and African Econometric Society Conference, 11-13 July 2019, Rabat, Morocco.
- Benjamin Guedj has been a PC member for UAI 2019 and IJCAI 2019.

10.1.2.2. Reviewer

- Hemant Tyagi acted as a reviewer for journals (Foundations of Computational Mathematics, Journal of Machine Learning Research, SIAM Journal on Scientific Computing, Advances in Data Analysis and Classification) and a conference (NeurIPS 2019).
- Pascal Germain acted as a reviewer for a journal (IEEE Transactions on Pattern Analysis and Machine Intelligence) and conferences (ICML 2019, ICLR 2019, NeurIPS 2019, COLT 2019, PHM 2019).
- Benjamin Guedj served as a reviewer for journals (JMLR, Neurocomputing, Journal of international research on robotics,...) and conferences (ICML 2019, ICLR 2019, NeurIPS 2019, COLT 2019, IJCAI 2019, UAI 2019, AISTATS 2019 & 2020).
- Alain Celisse acted as a reviewer for journals (IEEE Transactions on Pattern Analysis and Machine Intelligence, Annals of Statistics, JMLR,...) and conferences (ALT 2019, COLT 2019).
- Sophie Dabo-Niang acted as a reviewer for journals Annals of Statistics, JASA, Journal of Nonparametric statistics, TEST, METRIKA.
- Christophe Biernacki acted as a reviewer for CSDA, ESWA, JCGS, JMIV.
- Serge Iovleff acted as a reviewer for CSDA and Journal of Statistics and Computing.

- Vincent Vandewalle acted as a reviewer for ADAC, Statistics in Medicine, COST.
- Cristian Preda is a reviewer for Bernoulli, MCAP, ADAC.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Christophe Biernacki is an Associate Editor of the North-Western European Journal of Mathematics (NWEJM) and for Frontiers on the topic "Computational Methods for Data Analytics". He is also a Guest Editor for the Special Issue on Innovations in Model-Based Clustering and Classification of the journal Advances Data Analysis and Classification (ADAC).
- Cristian Preda is an associate editor for Methodological and Computing in applied probability (MCAP) and for Journal of Mathematical and Computer Science.
- Serge Iovleff is member of the Editorial Board of Astrostatistics (specialty section of Frontiers in Astronomy and Space Sciences)

10.1.4. Invited Talks

- Christophe Biernacki:
  - 3rd International Conference on Econometrics and Statistics (EcoSta 2019), Taiwan, June 25, 2019 [42]
  - 12th Scientific Meeting Classification and Data Analysis Group (CLADAG 2019), Italy, September 12, 2019 [41]
  - APSEM 2019 (Apprentissage et SEMantique) : écosystèmes pour la science ouverte et recherche par les données, Toulouse [39]
  - Séminary of Probability and Statistics of the University of Nice - Sophia Antopolis, France, November 19, 2019
- Hemant Tyagi:
  - Probability-Statistics seminar, Laboratoire de Mathematiques, Universite de Franche-Comte, Besancon, France, June 13, 2019
  - Probability-Statistics seminar, Université de Lille, France, September 18, 2019
- Pascal Germain:
  - Journées de la statistique, Nancy, France, June 6, 2019
- Benjamin Guedj:
  - Speaker (with John Shawe-Taylor) for a plenary tutorial at ICML 2019 (June 2019).
  - Several seminars in the UK (Gatsby unit, UCL CSML, UCL stats, ElementAI).
- Sophie Dabo-Niang:
  - 62nd World Statistics Congress, August, 18-23, 2019, Kuala Lumpur, Malaysia.
  - 7th Statistical Meeting of Avignon-Marseille, 14 June, 2019, Avignon, France.
  - Workshop on Non-Parametric Statistics, 18th, September, 2019, Grenoble, France.
  - CFIES 2019, 24-27 September 2019, Strasbourg, France.
  - Symposium of young Senegalese researchers in Pured and Applied Mathematics, December, 16-19, 2019, Mbour, Senegal.
- Cristian Preda:
  - Conference on scan statistics, IMS China, Dalian, 6-10 july, 2019.
  - Conference on categorical functional data at Romanian statistical society, 10-11 May 2019.
- Alain Celisse:

–   Session on Model selection at ERCIM 2018, London.

–   Several seminars in France (Nantes, Paris,...) and abroad WIAS Institute of Berlin.

- Vincent Vandewalle:

    –   Session clustering categorical and mixed type data at IFCS 2019, Thessaloniki.

10.1.5. Leadership within the Scientific Community

- Benjamin Guedj and Pascal Germain are founding members of the Machine Learning and Artificial Intelligence group (MALIA) of the French statistical association (SFdS).
- Benjamin Guedj is the new French representative at the board of ECAS (since Nov 2019).
- Since 2017, Benjamin Guedj is an elected member of the board of the Statistical French Society (SFdS).

10.1.6. Scientific Expertise

Christophe Biernacki reviewed one project as an expert for the ANR and for Innoviris (Brussels).

10.1.7. Research Administration

- Sophie Dabo-Niang is the person in charge of the MeQAME axis of laboratory LEM, CNRS 9221.
- Christophe Biernacki is Scientific Head of the Inria Lille center since June 2017.
- Benjamin Guedj has been the list head for the election of the Evaluation Committee in June 2019. He has been an elected member of CE since 2017 and is a member of its executive board since Sept 2019.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Pascal Germain taught

    Master: Introduction aux réseaux de neurones, 15 heures, M2, Université de Lille, France

- Sophie Dabo-Niang is teaching

    Master: Spatial Statistics, 24h, M2, Université de Lille, France

    Master: Advanced Statistics, 24h, M2, Université de Lille, France

    Master: Multivariate Data Analyses, 24h, M2, Université de Lille, France

    Licence: Probability, 24h, L2, Université de Lille, France

    Licence: Multivariate Statistics, 24h, L3, Université de Lille, France

- Cristian Preda is teaching

    Polytech'Lille engineer school: Linear Models, 48h.

    Polytech'Lille engineer school: Advanced statistics, 48h.

    Polytech'Lille engineer school: Biostatistics, 10h.

    Polytech'Lille engineer school: Supervised clustering, 24h. France

- Christophe Biernacki is teaching

    New Master Data Science: Statistics, 24h, M1, Université de Lille, France

- Benjamin Guedj is teaching

    Advanced machine learning (M2, 6h), University College London, UK

- Serge Iovleff is teaching

    Licence: Analyse et méthodes numériques, 56h, Université de Lille, DUT Informatique

    Licence: R.O. et aide à la décision, 32h, Université de Lille, DUT Informatique

- Vincent Vandewalle is teaching

  Licence: Probability, 60h, Université de Lille, DUT STID

  Licence: Case study in statistics, 45h, Université de Lille, DUT STID

  Licence: R programming, 45h, Université de Lille, DUT STID

  Licence: Supervised clustering, 32h, Université de Lille, DUT STID

  Licence: Analysis, 24h, Université de Lille, DUT STID

10.2.2. Supervision

10.2.2.1. PhD defense:

- Maxime Baelde, September 20th 2019, supervised by Christophe Biernacki and Raphaël Greff on "Generative models for the classification and separation of real-time sound sources" [11].

- Anne-Lise Bedenel, April 1st 2019, supervised by Christophe Biernacki and Laetitia Jourdan on "Matching descriptors evolving over time: application to insurance comparison" [12].

- Adrien Ehrhardt, September 3rd 2019, supervised by Christophe Biernacki, Philippe Heinrich and Vincent Vandewalle on "Formalization and study of statistical problems in Credit Scoring" [13].

10.2.2.2. PhD in progress:

- Felix Biggs, Generative models and kernels, University College London, Sep 2019, Benjamin Guedj.

- Antoine Vendeville, Learning on graph to stop the propagation of fake news, University College London, Sep 2019, Benjamin Guedj.

- Luxin Zhang, Domain adaptation from a pre-trained source model – Application to fraud detection in electronic payments, February 2019, Christophe Biernacki, Pascal Germain, Yacine Kessac.

- Paul Viallard, Interpreting representation learning through PAC-Bayes theory, September 2019, Amaury Habrard, Emilie Morvant, Pascal Germain.

- Dang Khoi Pham, Planning and re-planning of nurses in an oncology department using a multi-objective and interdisciplinary approach, September 2016, Sophie Dabo-Niang.

- Solange Doumun, Performance evaluation and contribution to the development of multispectral image analysis strategies for automatic and rapid diagnosis of malaria, December 2018, Sophie Dabo-Niang.

- Alaa Ali Ayad, Statistical modeling of large spatial data and its applications in health, September 2018, Sophie Dabo-Niang.

- Wilfried Heyse, Prise en compte de la structure temporelle dans l'analyse statistique de données protéomiques à haut débit, October 2019, Christophe Bauters, Guillemette Marot and Vincent Vandewalle.

- Margot Selosse, October 2017, Christophe Biernacki and Julien Jacques.

- Filippo Antonazzo, October 2019, Christophe Biernacki and Christine Keribin.

- Yaroslav Averyanov, September 2016, Early stopping and filters estimators, Alain Celisse.

10.2.3. Juries

- Sophie Dabo-Niang acted as a reviewer and an examinator for PhD theses.

- Christophe Biernacki acted as a reviewer for the following PhD theses: Keefe Murphy December 17th 2019 (UCD Dublin), Jocelyn Chauvet April 19th 2019 (University of Montpellier).

- Christophe Biernacki acted as an examinator for the following HdR defenses: Madalina Olteanu December 10th 2019 (University Paris 1), Servane Gey February 7th 2019 (University Paris 5).

- Christophe Biernacki participated in the following juries of recruitment: MC jury université d'Avignon, Jury CR Lille, Jury DR Inria.

- Christophe Biernacki participated in the following juries of recruitment: MCF jury Université de Nice May 2019, Jury CR Paris 2019, Jury CR Inria (nationwide) 2019.

- Vincent Vandewalle participated in an MC jury Université Versailles Saint Quentin May 2019.

- Alain Celisse acted as a reviewer for the HdR defense of Zoltan Szabo in December 2019 at Ecole Polytechnique, Palaiseau.

- Cristian Preda acted as a referee for the PhD thesis of Amandine Schmutz, Université de Lyon 2, November 15, 2019.

- Cristian Preda acted as a referee for the HDR defense of Raluca Vernic, July 10, 2019, Universitatea Ovidiu, Constanta, Romania.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Christophe Biernacki acts as a member of the working group calculation for Inria.

10.3.2. Interventions

- Pascal Germain participated in the school activity "Jouer à débattre" of the organization "L'arbre des connaissances", as an expert in artificial intelligence (Lycée EIC de Tourcoing, February 7, 2019).

- Pascal Germain gave a vulgarization talk about neural networks and deep learning at the "Journée de l'Enseignement de l'Informatique et de l'Algorithmique" (Université de Lille, March 6, 2019).

- Christophe Biernacki participated in a round table "Deep Learning for PHM: Opportunities and Challenges", The 10th Prognostics and System Health Management Conference Paris, France, May 2 - May 5, 2019.

- Christophe Biernacki gave a talk at the Forum Teratec in June 12nd 2019, Ecole Polytechnique, Palaiseau with Margot Correard (DiagRAMS) on Predictive maintenance solution without additional sensors [40].

- Cristian Preda was invited as a speaker at IoT Week on predictive maintenance, Méaulte, December 4, 2019.

- Cristian Preda was invited as a speaker at IT Tour by Le Monde Informatique on artificial inteligence, November 14, 2019.

MOKAPLAN Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events: Organisation

7.1.1.1. General Chair, Scientific Chair

- School, A Numerical introduction to optimal transport https://team.inria.fr/ecoleceainriaedf/en/
- School, Sparsity for Physics, Signal, Learning https://sparsity4psl.github.io/

7.1.1.2. Member of the Organizing Committees

I. Waldspurger has co-organized a session on phase retrieval at the SamTA conference 2019.

7.1.2. Scientific Events: Selection

7.1.2.1. Reviewer

V. Duval has reviewed several contributions for the GRETSI conference.

7.1.3. Journal

7.1.3.1. Member of the Editorial Boards

G. Carlier is on the Editorial board of J. Ec. Polytechnique, Mathematics and Fin. Econ., Applied Math. and Optim., Journal of Mathematical Analysis and Applications and J. Dyn. Games,

7.1.3.2. Reviewer - Reviewing Activities

I. Waldspurger has performed reviews for several journals (Applied and Computational Harmonic Analysis, Journal of Fourier Analysis and Applications, IEEE Transactions on Signal Processing and IEEE Transactions on Information Theory) and for the ICML conference.
V. Duval has performed reviews for SIAM Journal on Imaging Sciences, Information and Inference: a Journal of the IMA, Bulletin of the London Mathematical Society, Inverse Problems.
T. O. Gallouët has performed reviews for Analysis & PDE, Archive for Rational Mechanics and Analysis ARMA, Mathematics of computation (Math. of Comp.).
A. Natale has performed reviews for Journal of Scientific Computing (JOMP).
P. Pegon has performed reviews for Journal of Mathematical Analysis and Applications and Advances in Calculus of Variations.

7.1.4. Invited Talks

- J-D. Benamou, Seminar Monash University (Aug., Melbourne), Workshop on Monge-Ampère in honor of Prof. J. Urbas (Aug. , Kiama), Workshop on Optimal Transport and Optimal Patterns (Sept. , Edinburgh), Workshop on Risk in Finance (Oct. , Marseille)

- V. Duval: Workshop Variational methods and optimization in Imaging (IHP, Paris), Workshop on Signal and Image Analysis (MSIA'19, Burghausen, Germany), Two workshops at Conference on Applied Inverse Problems (AIP'19, Grenoble), Workshop Computational aspects of Geometry (U. Paul Sabatier, Toulouse), Conference Optimization on Measure Spaces (U. Paul Sabatier, Toulouse)

- G. Carlier Orsay (ANEDP), workshop Transport optimal Toulouse, ANR Shapo (Paris 7), Workshop Optimal Transport and Economics (Fields Institute, Toronto), Optimal transport in analysis and probability (Vienne, E. Schrodinger Institute).

- I. Waldspurger: Workshop on operator theoretic methods in dynamic data analysis and control (UCLA, États-Unis), workshop on imaging and machine learning (IHP, Paris), series of lectures on waves and imaging (ETH Zurich), séminaire parisien d'optimisation (IHP, Paris), workshop on computational aspects of geometry (U. Paul Sabatier, Toulouse)

- A. Natale: MAGA days (Université Paris-Sud, Paris), Journé de rentrée de l'equipe ANEDP (Université Paris-Sud, Paris), Rencontres Inria-LJLL en calcul scientifique (LJLL, Paris), Workshop on Variational Discretization for GFD (Fields Institute, Canada).

- P. Pegon: Séminaire d'analyse (EPFL, Lausanne, Suisse)

- T. O. Gallouët: Séminaire CMAP, École polytechnique.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

- Licence : J-D. Benamou, Méthodes Numériques , 39 H. équivalent TD, niveau (L2), université Paris Dauphine , FR

- Licence : V. Duval, Probabilités Multidimensionnelles, 39 h équivalent TD, niveau L2, Université Paris-Dauphine, FR

- Master : V. Duval, Optimization for Machine Learning, 9h, niveau M2, Université PSL/ENS, FR

- Licence : I. Waldspurger, Analyse 2, 45 h équivalent TD, niveau L1, Université Paris-Dauphine, FR

- Master : I. Waldspurger, Optimization for Machine Learning, 6h, niveau M2, Université PSL/ENS, FR

- Licence : G. Carlier, algebre 1, L1 78h, Dauphine, FR

- Master : G. Carlier Variational and transport methods in economics, M2 Masef, 27h, Dauphine, FR

- Licence : A. Natale, Python, 44 h équivalent TD, niveau L2, Université Paris-Sud , FR

- Licence : P. Pegon, Analyse 3, 51 H. équivalent TD, TD niveau L2, Université Paris-Dauphine, FR

- Licence : P. Pegon, Intégrale de Lebesgue et probabilités, 44 H. équivalent TD, TD niveau L3, Université Paris-Dauphine, FR

- Master : P. Pegon, Pré-rentrée d'analyse, 16 H. équivalent TD, cours/TD niveau M1, Université Paris-Dauphine, FR

- Licence : T. O. Gallouët, Optimisation, 24h équivalent TD, niveau L3, Université d'Orsay), FR

7.2.2. Supervision

- PhD in progress : Paul Catala, Optimisation polynomiale pour les problèmes inverses en imagerie, 01/10/2016, V. Duval

- PhD in progress : Romain Petit, Méthodes sans grille pour l'imagerie, 01/10/2019, V. Duval

- PhD in progress : J-D. Benamou, Miao Yu, Application of optimal transport theory in seismic full waveform inversion, 1/10/2016. Co-supervised by J.-P. Vilotte (IPGP)

- PhD in progress : J-D. Benamou, Lucas Martinet, Calcul Haute Performance pour le Transport Optimal, application en Astrophysique, 1/10/2017

- PhD in progress : J-D. Benamou, Giorgi Rukhaia , An Optimal Transportation computational approach of inverse free-form optical surfaces design for extended sources, 1/05/2018

- PhD in progress: G. Carlier, Quentin Petit, mean-field games for cities modeling, (co-supervision with Y. Achdou and D. Tonon), 1/09/2018

- PhD in progress: G. Carlier, Katharina Eichinger, Systems of Monge-Ampere equations: a variational approach 1/09/2019

- PhD in progress: T. O. Gallouët, Gabriele Todeschi, Optimal transport and finite volume schemes, 1/09/2018

7.2.3. *Juries*

J-D. Benamou, PhD Defense of Aude Genevay (13/03).
G. Carlier was in the Ph.D committee of Michael Orieux, Aymeric Baradat and Rui Chen.

7.3. Popularization

- I. Waldspurger, *Quand les films prennent des couleurs*, exposé au cycle SMAI & Musée des arts des métiers

NACHOS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Stéphane Lanteri has chaired the second workshop of the PHOTOM (PHOTOvoltaic solar devices in Multiscale computational simulations) project that took place at Inria Sophia Antipolis-Méditerranée, France, Jan 28-Feb 01, 2019.
- Stéphane Lanteri has chaired the third workshop of the CLIPhTON (advanCed numericaL modelIng for multiscale and multiphysics nanoPhoTONics) network that took place ati Inria Sophia Antipolis-Méditerranée, France, October 24-25, 2019.

9.1.2. Journal

9.1.2.1. Reviewer - Reviewing Activities

- Théophile Chaumont-Frelet: ESAIM Math. Model. Numer. Anal., NUMA, NME
- Yves D'Angelo: Nanotechnology, Journal of Geophysical & Astrophysical Fluid Dynamics
- Claire Scheid: SIAM J. Numer. Anal., SIAM J. Sci. Comput.
- Stéphane Lanteri: J. Comput. Phys., Comp. Meth. Appl. Mech. Engrg.

9.1.3. Invited Talks

- Théophile Chaumont-Frelet, Journées Ondes Sud-Ouest, MIOS, France , January 2019.
- Théophile Chaumont-Frelet, Séminaire LJAD, Nice, France , November 2019.
- Théophile Chaumont-Frelet at University of Basel, Switzerland, December 11-13, 2019.
- Théophile Chaumont-Frelet at University of Bath, UK, November 11-15, 2019.
- Théophile Chaumont-Frelet at the Basque Center for Applied Mathematics, Spain, May 1-3, 2019.

9.1.4. Scientific Expertise

Stéphane Lanteri is a member of the Scientific Committee of CERFACS.

9.1.5. Research Administration

- Yves D'Angelo is the head of the "Laboratoire J.A. Dieudonné" (LJAD, UMR 7351).
- Stéphane Descombes is the head of the "Maison de la Modélisation, de la Simulation et des Interactions" (MSI) of Université Côte d'Azur
- Stéphane Lanteri is a member of the Project-team Committee's Bureau of the Inria Sophia Antipolis-Méditerranée research center.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

License: Yves D'Angelo, *Analyse des Séries de Fourier* , 30 h, L3, Univ. Côte d'Azur

Lisence: Claire Scheid, *Fondements 2* , 24 h, L1, Univ. Côte d'Azur

Master: Yves D'Angelo, *Modélisation et Simulation Numérique* , 48 h, M1, Univ. Côte d'Azur

Master: Yves D'Angelo, *Modélisation de la Turbulence fluid* , 30 h, M2, Univ. Côte d'Azur

Master: Claire Scheid, *Analyse, Lecture and practical works* , 27 h, M2, Univ. Côte d'Azur

Master: Claire Scheid, *Méthodes numériques en EDP, Lectures and practical works* , 63 h, M1, Univ. Côte d'Azur

Master: Claire Scheid, *Option Modélisation, Lectures and practical works* , 48 h, M2, Univ. Côte d'Azur

Master: Claire Scheid, *Soutien Analyse Fonctionnelle et Esepacde de Hilbert* , 18 h, M1, Univ. Côte d'Azur

Master: Stéphane Descombes, *Introduction aux EDP* , 30 h, M1, Univ. Côte d'Azur

Master: Stéphane Descombes, *ACP et reconnaissance de caractères* , 9 h, M2, Univ. Côte d'Azur

License: Stéphane Descombes, *Travaux dirigés de mathématiques pour l'économie*, 18 h, L1, Univ. Côte d'Azur

Engineering: Stéphane Lanteri, *High performance scientific computing*, , 24 h, MAM5, Polytech Nice Sophia

9.2.2. Supervision

PhD in progress: Alexis Gobé, Multiscale hybrid-mixed methods for time-domain nanophotonics, vNovember 2016, Stéphane Lanteri

PhD in progress: Georges Nehmetallah, Efficient finite element type solvers for the numerical modeling of light transmission in nanostructured waveguides and cavities, November 2017, Stéphane Descombes and Stéphane Lanteri

PhD in progress: Zakaria Kassali, Multiscale finite element simulations applied to the design of photovoltaic cells, November 2019, Théophile Chaumont-Frelet and Stéphane Lanteri

PhD in progress: Massimiliano Montone, High order finite element type solvers for the coupled Maxwell-semiconductor equations in the time-domain, December 2019, Stéphane Lanteri and Claire Scheid

9.2.3. Juries

Yves D'Angelo: Basile Radisson, IRPHE Marseille, France, Avril 2019, Rapporteur.

Claire Scheid: Pierre Mennuni, Lille, France, November 2019, Examinatrice.

Claire Scheid: Weslley Da Silva Peireira, LNCC, Petropolis, Brazil, September 2019, Examinatrice.

Stéphane Lanteri: Aurélien Citrain, Inria Pau, December 2019, Rapporteur.

Stéphane Lanteri: Nicolas Lebbe, CEA LETI, Grenoble, Novembre 2019, Examinateur.

Stéphane Lanteri: Matthieu Patrizio, ISAE, Toulouse, Mai 2019: Examinateur.

NANO-D Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. Member of the Organizing Committees

- Sergei Grudinin coorganized CECAM workshop simSAS 2019, April 8-11, 90 participants, at ILL Grenoble, with Jean-Louis Barrat (UGA), Anne Martel (ILL), Sylvain Prévost (ILL), https:// workshops.ill. fr/event/143/overview.

8.1.2. Scientific Events: Selection

8.1.2.1. Member of the Conference Program Committees

International Conference on Bioinformatics and Computational Biology (Devaurs)

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

- Biophysical Reviews (Devaurs)
- Current Proteomics (Devaurs)

8.1.3.2. Reviewer - Reviewing Activities

- Applied Sciences (Devaurs)
- Autonomous Robots (Devaurs)
- Bioinformatics (Oxford Press) (Devaurs, Grudinin)
- Current Proteomics (Devaurs)
- IEEE Transactions on Automation Science and Engineering (Devaurs)
- Journal of Bioinformatics and Computational Biology (Devaurs)
- Sensors (Devaurs)
- PLOS Computational Biology (Grudinin)
- Journal of Computational Chemistry (Grudinin)
- BMC Bioinformatics (Grudinin)
- Computational and Structural Biotechnology Journal (Elsevier) (Grudinin)
- Accounts of Chemical Research (ACS) (Grudinin)
- Computational Biology and Chemistry (Grudinin)
- Journal of Chemical Information and Modeling (Grudinin)
- Journal of Computer-Aided Molecular Design (Grudinin)
- Nature (Grudinin)
- Proteins: Structure, Function, and Bioinformatics (Grudinin)

8.1.4. Invited Talks

- D. Devaurs. Efficient strategies to explore the conformational space of proteins and molecular complexes. Seminar of the Functionality and Protein Engineering Unit, University of Nantes, France, 09/2019

- D. Devaurs. Efficient strategies to explore the conformational space of proteins and molecular complexes. CAPSID Seminar, Loria (Inria, CNRS, University of Lorraine), Nancy, France, 09/2019

- D. Devaurs. Efficient strategies to explore the conformational space of proteins and molecular complexes. ABS Seminar, Inria Sophia Antipolis - Méditerranée, France, 11/2019

- S. Grudinin. What does deep learning see in 3d protein structures? In 5th Korean Polish Conference on Protein Folding, September 16-18, 2019, Seoul, 2019.

- S. Grudinin. What does artificial intelligence see in 3d protein structures? In Workshop on Artificial Intelligence Applied to Photon and Neutron Science, 12-14 November, Grenoble, France, https://workshops.ill.fr/event/209/, 2019.

- S. Grudinin. Symmetry in protein complexes. In 7th CAPRI evaluation meeting, EMBL-EBI, Hinxton, UK, April 3-5, 2019, 2019.

- S. Grudinin. SAXS/SANS-assisted flexible fitting and docking. In EMBO Practical course on small angle neutron and X-ray scattering from biomolecules in solution, http://meetings.embo.org/event/19-small-angle-scattering, 2019.

- S. Grudinin. The least constraint approach for automatic coarse-graining of macromolecules. In The First International Conference on Mathematical Multiscale Modeling in Biology, Guanacaste, October 21-25, Costa Rica, 2019.

- S. Grudinin. Deep learning and artificial intelligence applied to the prediction of protein structure and interactions. In Aviesan ITMO Molecular and Structural Basis of Life Sciences : Deciphering The Functional Mechanisms Of Biological Macromolecules: Upcoming Challenges In Bioinformatics, Modelling And Experimental Validations, October 7-8, Paris, France, 2019.

- S. Grudinin. Challenges of modern structural bioinformatics. At the biological department, MSU Minsk, December 26, Minsk, Belarus, 2019.

- S. Grudinin. Novel software tools for small angle scattering. Seminar at the Synrotron SOLEIL, 13th May, 2019.

- S. Grudinin. On the analysis of macromolecular flexibility. Seminar at STFC Rutherford Appleton Laboratory, UK, March 2019.

- S. Grudinin. Novel algorithms for rapid modeling and analysis of flexibility and symmetry in macromolecules. Seminar at Cambridge Institute for Medical Research, UK, April 2019.

- S. Grudinin. Modeling and analysis of flexibility and symmetry in macromolecules. Seminar at Computational Biophysics department, Nagoya University, Japan, March 2019.

- S. Grudinin. On the nonlinear normal mode analysis. Seminar at the department of Chemistry, University of Bergen, Norway, August 2019.

- S. Grudinin. Novel computational tools for biomolecular small-angle scattering. Seminar at the department of Chemistry, University of Oslo, Norway, August 2019.

- S.Grudinin. Integrative Approaches for Current Problems in Structural Biology. Seminar at Laboratory of Theoretical Biochemistry, Institut de Biologie Physico-Chimique, Paris, 31 Jan 2019.

- S.Grudinin. New methods for protein-protein docking. Seminar at the bioinformatics unit, Kansas University, Lawrence, USA, October 2019.

8.1.5. Research Administration

- Sergei Grudinin is a member of IA working group at LINX, Lund Institute Of Advanced Neutron And X-Ray Science, Sweden.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- Sergei Grudinin gave 2 public lecture and tutorials for Master and PhD level students on structural bioinformatics at the biology department of BSU Minsk, Belarus in December 2019.

- Sergei Grudinin prepared 2 tutorials for the EMBO school and CECAM workshop on small-angle scattering.

8.2.2. Supervision

PhD : Phd thesis defence of Guillaume Pagès, Université Grenoble Alpes, 12 septembre 2019
Title: Novel computational developments for protein structure analysis and prediction.
Thesis committee: Sergei Grudinin, Pablo Chacón, Česlovas Venclovas, Elodie Laine, Konrad Hinsen, Stéphane Redon, Arne Elofsson.
Summary: Proteins are ubiquitous for virtually all biological processes. Identifying their role helps to understand and potentially control these processes. However, even though protein sequence determination is now a routine procedure, it is often very difficult to use this information to extract relevant functional knowledge about system under study. Indeed, the function of a protein relies on a combination of its chemical and mechanical properties, which are defined by its structure. Thus, understanding, analysis and prediction of protein structure are the key challenges in molecular biology.

Prediction and analysis of individual protein folds is the central topic of this thesis. However, many proteins are organized in higher-level assemblies, which are symmetric in most of the cases, and also some proteins contain internal repetitions. In many cases, designing a fold with repetitions or designing a symmetric protein assembly is the simplest way for evolution to achieve a specific function. This is because the number of combinatorial possibilities in the interactions of designed folds reduces exponentially in the symmetric cases. This motivated us to develop specific methods for symmetric protein assemblies and also for individual proteins with internal repeats. Another motivation behind this thesis was to explore and advance the emerging deep neural network field in application to atomistic 3-dimensional (3D) data.

This thesis can be logically split into two parts. In the first part, we propose algorithms to analyse structures of protein assemblies, and more specifically putative structural symmetries. We start with a definition of a symmetry measure based on 3D Euclidean distance, and describe an algorithm to efficiently compute this measure, and to determine the axes of symmetry of protein assemblies. This algorithm is able to deal with all point groups, which include cyclic, dihedral, tetrahedral, octahedral and icosahedral symmetries, thanks to a robust heuristic that perceives correspondence between asymmetric subunits. We then extend the boundaries of the problem, and propose a method applicable to the atomistic structures without atom correspondence, internal symmetries, and repetitions in raw density maps. We tackle this problem using a deep neural network (DNN), and we propose a method that predicts the symmetry order and a 3D symmetry axis.

Then, we extend the DNN architecture to recognise folding quality of 3D protein models. We trained the DNN using as input the local geometry around each residue in a protein model represented as a density map, and we predicted the CAD-scores of these residues. The DNN was specifically conceived to be invariant with respect to the orientation of the input model. We also designed some parts of the network to automatically recognise atom properties and robustly select features. Finally, we provide an analysis of the features learned by the DNN. We show that our architecture correctly learns atomic, amino acid, and also higher-level molecular descriptors. Some of them are rather complex, but well understood from the biophysical point of view. These include atom partial charges, atom chemical elements, properties of amino acids, protein secondary structure and atom solvent exposure. We also demonstrate that our network learns novel structural features.

This study introduces novel tools for structural biology. Some of them are already used in the community, for example, by the PDBe database and CASP assessors. It also demonstrates the power of deep learning in the representation of protein structure and shows applicability of DNNs to computational tasks that involve 3D data.

PhD : Phd thesis defence of François Rousse, Université Grenoble Alpes, 2019

Title: Incremental Algorithm for Orbital-Free Density Functional Theory.

Thesis committee: Stéphane Redon, Jean Clérouin, Reinhold Schneider, Johannes Dieterich, Philippe Blaise, Florent Calvo, Xavier Bouju.

Summary: The ability to model molecular systems on a computer has become a crucial tool for chemists. Indeed molecular simulations have helped to understand and predict properties of nanoscopic world, and during the last decades have had large impact on domains like biology, electronic or materials development. Particle simulation is a classical method of molecular dynamic. In particle simulation, molecules are split into atoms, their inter-atomic interactions are computed, and their time trajectories are derived step by step. Unfortunately, inter-atomic interactions computation costs prevent large systems to be modeled in a reasonable time. In this context, our research team looks for new accurate and efficient molecular simulation models. One of our team's focus is the search and elimination of useless calculus in dynamical simulations. Hence has been proposed a new adaptively restrained dynamical model in which the slowest particles movement is frozen, computational time is saved if the interaction calculus method do not compute again interactions between static atoms. The team also developed several interaction models that benefit from a restrained dynamical model, they often updates interactions incrementally using the previous time step results and the knowledge of which particle have moved.

In the wake of our team's work, we propose in this thesis an incremental First-principles interaction models. Precisely, we have developed an incremental Orbital-Free Density Functional Theory method that benefits from an adaptively restrained dynamical model. The new OF-DFT model keeps computation in Real-Space, so can adaptively focus computations where they are necessary. The method is first proof-tested, then we show its ability to speed up computations when a majority of particle are static and with a restrained particle dynamic model. This work is a first step toward a combination of incremental First-principle interaction models and adaptively restrained particle dynamic models.

PhD in progress : Maria Kadukova, "Novel computational approaches for protein ligand interactions", Sep 2016-, supervisors: Sergei Grudinin (France) and Vladimir Chupin (MIPT, Russia).

8.2.3. *Juries*

Sergei Grudinin served as an opponent at the defence of David Menéndez Hurtado's PhD thesis entitled 'Structured Learning for Structural Bioinformatics'. The defence took place at the Department of Biochemistry and Biophysics, Stockholm University, Sweden on the 11th of October.

<h1 style="text-align:center; color:red;">NECS Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- C. Canudas-de-Wit was the General Chair of IEEE Conference on Decision and Control 2019 (CDC) in Nice (11-13 Dec. 2019).

10.1.1.2. Member of the Organizing Committees

- Maria Laura Delle Monache organized the workshop on "Lagrangian Control for Traffic Flow Smoothing in Mixed Autonomy Settings ", CDC December 2019 (with Alexandre Bayen*, George J. Pappas, Benedetto Piccoli, Daniel B. Work, Jonathan Sprinkle, Maria Laura Delle Monache, Benjamin Seibold, Cathy Wu, Abdul Rahman Kreidieh, Eugene Vinitsky, Yashar Zeiynali Farid).

- Maria Laura Delle Monache organized a tutorial session on "Autonomous Vehicles and Traffic Control in Mixed Autonomy Environments" at CDC, December 2019 (with Jonathan Sprinkle, Ram Vasudevan, Dan Work).

- Team members organized the following invited sessions at the CDC 2019:

  • "Novel Approaches to Traffic Estimation and Control Using Automated Vehicles" (M.L. Delle Monache with R.Stern (University of Minnesota))
  • "Control for Large Scale Traffic Networks" (M.L. Delle Monache, C. Canudas de Wit with N. bekiaris-Liberis (Univeristy of Crete))
  • "Models and Control Methods Tor Traffic Networks" (M. L. Delle Monache with S. Siri and C. Pasquale (University of Genoa))
  • "Multi-Sensor Fusion Techniques for State Estimation in Navigation" (H. Fourati with A. Barrau (Safran), J. Farrell (University of California Riverside), M. Liu (Hong Kong University of Science) and Z. Zhou (University of Electronic Science and Technology of China).

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- F. Garin is Associate Editor in the IEEE Control System Society Conference Editorial Board (this year, she served for CDC 2019, ACC 2020) and Associate Editor in the European Control Association (EUCA) Conference Editorial Board (this year, she served for ECC 2020).

- H. Fourati is member of (1) the International Program Committee (IPC) of international conferences STA'19, ICCAD'19, ISAECT'19 (2) the Technical Program Committee (TCP) for the International Conference on Indoor Positioning and Indoor Navigation (IPIN'19), Pisa (Italy), Sep. 2019 (3) Member of the publication chairs of the International Conference on Control, Automation and Diagnosis (ICCAD'19), Grenoble (France), Jul. 2019.

10.1.2.2. Reviewer

Team members have been reviewers for several conferences, including the most prestigious ones in their research area: IEEE Conference on Decision and Control CDC, European Control Conference ECC, American Control Conference ACC, European Signal Processing Conference, IEEE International Conference on Robotics and Automation ICRA, IEEE/RSJ International Conference on Intelligent Robots and Systems IROS, IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys), IFAC Workshop on Control for Transportartion Systems (CTS), IEEE Intelligent Transportation Systems Society Conference, Transportation Research Board Annual Meeting.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- C. Canudas-de-Wit is Associate Editor of the IEEE Transactions on Control of Networks Systems IEEE-TCNS (since June 2013) and Editor of the Asian Journal of Control AJC (since 2010).
- P. Frasca is Subject Editor of the International Journal of Robust and Nonlinear Control (Wiley) (since February 2014), Associate Editor of the IEEE Control System Letters (from February 2017) and Associate Editor of the Asian Journal of Control (Wiley) (since January 2017).
- H. Fourati is Associate Editor of the Asian Journal of Control (Wiley) (since January 2016) and of the Open Transportation Journal. He has also been lead guest editor of the special issue "Recent Advances on Data Fusion, Estimation in Navigation and Control" for Asian Journal of Control (AJC), 2019.

10.1.3.2. Reviewer - Reviewing Activities

Team members have been reviewers for several journals, including the most prestigious ones in their research area: IEEE Trans. on Automatic Control, IEEE Trans. on Control of Network Systems, IEEE Trans. on Signal Processing, Automatica, IEEE Signal Processing Letters, Systems and Control Letters, Int. Journal of Robust and Nonlinear Control, Elsevier Transportation Research Part B, IEEE Trans. on Intelligent Transportation Systems, IEEE/ASME Trans. on Mechatronics, IEEE Trans. on Instrumentations and Measurements, IEEE Sensors journal, IEEE Trans. on Robotics, AIMS Networks and Heterogeneous Network (NHM), Wiley Mathematical Methods in the Applied Sciences (MMAS), Journal of Mathematical Analysis and Applications (JMMA), Journal of Nonlinear Science and Applications (JNSA), Journal of the Franklin Institute, AMS Mathematical Reviews, Asian Journal of Control.

10.1.4. Invited Talks

P. Frasca gave the following talks:

• "The closed loop between opinion formation and personalised recommendations", Workshop "Network Dynamics in the Social, Economic, and Financial Sciences", Turin, Italy, November 5-8, 2019.

• "Non-smooth opinion dynamics", Workshop "European Network for Nonsmooth Dynamical Systems, Grenoble, September 18, 2019.

• "The closed loop between opinion formation and personalised recommendations", Workshop "Reti sociali e comportamenti emergenti", Napoli, February 4, 2019.

M.L. Delle Monache gave the following talks:

• Traffic flow implications of autonomous and partially autonomous vehicles, Workshop on "Connected and automated vehicles for energy efficient and environmental impact", IFPEN, Rueil-Malmaison, France, September 2019.

• Modeling autonomous vehicles in traffic flow, International Congress on Industrial and Applied Mathematics (ICIAM) 2019, Valencia, Spain, July 2019.

• Micro - macro models for traffic with autonomous vehicles, IPAM workshop on Autonomous vehicles, IPAM (UCLA), USA, February 2019.

• Traffic control and estimation with autonomous vehicles, Journée du groupe de travail en automatique et transports terrestres, Université Grenoble Alpes, France, January 2019.

• Traffic reconstruction using autonomous vehicles, Sixth Chilean Workskshop on Numerical Analysis of Partial Differential Equations (WONAPDE), Concepción, Chile, January 2019.

10.1.5. Leadership within the Scientific Community

- Team members participate to the following technical committees of IEEE Control Systems Society and of the International Federation of Automatic Control (IFAC):

  • IEEE-CSS Technical Committee "Networks and Communications Systems" (P. Frasca and F. Garin);

  • IFAC Technical Committee 1.5 on Networked Systems (P. Frasca and C. Canudas-de-Wit);

  • IFAC Technical Committee 2.5 on Robust Control (P. Frasca);

  • IFAC Technical Committee 7.1 Automotive Control (C. Canudas-de-Wit);

  • IFAC Technical Committee 7.4 Transportation systems (C. Canudas-de-Wit);

  • IFAC Technical Committee 9.2 on Social Impact of Automation (P. Frasca);

- C. Canudas-de-Wit is member of the advisory board (2017-21) of the project "Societal-Scale Cyber-Physical Transport Systems" supported by the Swedish Strategic Research Foundation, KTH Sweden.

- P. Frasca is member of the "Comité de Direction du GdR MACS ", term 2019-2023.

- A. Kibangou reviewed project proposals for NRF (South-African research agency)

10.1.6. Research Administration

- From July 2019, F. Garin is 'Présidente du CES du Centre (Comité des Emplois Scientifiques)'.

- In Nov. 2019, F. Garin has been elected as 'responsable du pôle Automatique et Diagnostic (PAD)' at GIPSA-Lab, a role to be started in Jan. 2020.

- Since Nov. 2019, F. Garin is co-head of the CSP (Cyber-Physical Systems) action of Persyval2.

- A. Kibangou has been elected member of the research department MSTIC (mathematics, information and communication sciences) of Univ. Grenoble Alpes.

- A. Kibangou is co-head of the PCS (Pervasive Computing Systems) action of Persyval-Lab (until November 2019).

- A. Kibangou is academic director (L2) IUT1 (GEII).

- A. Kibangou is co-head for higher studies opportunities (Responsable poursuite d'études) (IUT1-GEII).

- H. Fourati is member of the Department of Electrical Engineering Council, IUT1 Grenoble, France (2018-2021)

- H. Fourati is member of CNU61 (Conseil national des universités, Génie informatique, Automatique et Traitement du Signal) since 2016.

- H. Fourati is in charge of communication mission and visits to high school within the Department of Electrical Engineering, IUT1 Grenoble, France (2017-present).

- M.L. Delle Monache is member of two local committees at Inria Rhône-Alpes: "Commission de développement technologique (research engineers) and Comité des Études Doctorales (PhD grants CORDI-S).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: F. Garin, Distributed Algorithms and Network Systems, 13.5h, M2, Univ. Grenoble Alpes, France.

Licence: H. Fourati, Mathématiques, 30h, L2, IUT1 (GEII1), Univ. Grenoble Alpes, France.

Licence: H. Fourati, Informatique Industrielle, 111h, L1, IUT 1 (GEII), Univ. Grenoble Alpes, France.

Licence: H. Fourati, Réseaux locaux industriels, 34h, L2, IUT1 (GEII), Univ. Grenoble Alpes, France.

Licence: H. Fourati, Automatique, 39h, L3, UFR physique, Univ. Grenoble Alpes, France.

Licence: H. Fourati, Automatique continue et discrete, 27h, L2, IUT1 (GEII), Univ. Grenoble Alpes, France.

Licence: A. Kibangou, Automatique, 75h, L2, IUT1(GEII), Univ. Grenoble Alpes, France.

Licence: A. Kibangou, Mathématiques, 44h, L2, IUT1 (GEII), Univ. Grenoble Alpes, France.

Licence: A. Kibangou, Mathématiques, 126h, L1, IUT1 (GEII), Univ. Grenoble Alpes, France.

10.2.2. Supervision

- PhD: Stéphane Mollier, Aggregated Scale-Free Models for 2-D Large-scale Traffic Systems, from Oct. 2016, co-advised by C. Canudas de Wit, M. L. Delle Monache and B. Seibold.
- PhD in progress: Liudmila Tumash, Traffic control in large-scale urban networks, from Sept. 2018, co-advised by C. Canudas de Wit and M. L. Delle Monache.
- PhD in progress: Ujjwal Pratap, Resilient control in scale-free networks, from Feb. 2019, co-advised by C. Canudas-de-Wit, F. Garin, and H. Sandberg (KTH Stockholm).

10.2.3. Juries

- P. Frasca was committee member of the PhD defense of:

  • Wenjing Yang. Influence Maximization in Social Networks. Universit Aix-Marseille, France. PhD advisors: Alessandro Giua and Leonardo Brenner. November 2019.

  • Zhiyang Ju. Persistent Communication Connectivity of Multi-agent Systems. University of Melbourne, Australia. PhD advisors: Dragan Nesic and Iman Shames. February 2019.

- F. Garin was committee member of the PhD defence of Gustav Nilsson, Lund Univ., in Feb. 2019; Thesis: On robust distributed control of transportation networks, supervisor: Giacomo Como, co-supervisor: Anders Rantzer.

- F. Garin was committee member of the PhD defence of Han Zhang, KTH Stochkolm, in Feb. 2019; Thesis: Optimizing Networked Systems and Inverse Optimal Control, supervisor: Xiaoming Hu, co-supervisor: Elias Jarlebring.

- F. Garin was committee member of the PhD defence of Tommaso Borzone, Univ. Lorraine, Nancy, in Sept. 2019; Thesis: Decentralised control of multi-agent systems: a hybrid formalism, supervisor: Irinel-Constantin Morarescu, co-supervisor: Marc Jungers.

10.3. Popularization

10.3.1. Education

Maria Laura Delle Monache gave a talk to students of 8th grade (4ème) and 11th Grade (1ère) in the Cérémonie de remise de prix des Olympiades de Mathématiques, La mobilité et les vehicules autonomes, , Université Grenoble Alpes, France, May 2019.

<h1 style="text-align:center; color:red;">POEMS Project-Team</h1>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Several members of POEMS team were members of the scientific committee of the WAVES conference, organized in Vienna in August 2019.
- J.-F. Mercier co-organized a summer school on *"Wave propagation in complex and microstructured media"* at Cargèse (Corsica), August 20th to 30th, 2019
- A.-S. Bonnet-Ben Dhia co-organized a workshop entitled *"Advanced Theoretical and Numerical Methods for waves in structured Media"* in Marseille in June 2019, in the framework of the GDR Ondes. They were about 90 attendees.

9.1.1.2. Member of the Organizing Committees

- S. Chaillat is a co-animator of the topic *"Modeling and simulation"* of the GDR Ondes.
- J.-F. Mercier is a co-animator of the topic *"Effective dynamics of microstructured media"* of the GDR MecaWaves.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- A. S. Bonnet-Ben Dhia is an associate editor of SIAP *(SIAM Journal of Applied Mathematics)*.
- M. Bonnet is an associate editor of *Engineering Analysis with Boundary Elements*, *Journal of Optimization Theory* and *Application and Journal of Integral Equations and Applications*. He is in the editorial board of *Inverse Problems* and *Computational Mechanics*.
- P. Ciarlet is an editor of ESAIM:M2AN *(Mathematical Modeling and Numerical Analysis)*.
- P. Joly is a member of the Book Series Scientific Computing of Springer Verlag.

9.1.2.2. Reviewer - Reviewing Activities

The team members regularly review papers for many international journals.

9.1.3. Research Administration

- E. Lunéville was chair of the *Applied Mathematics Department* (UMA) at ENSTA Paris until September 2019.
- A. S. Bonnet-Ben Dhia is deputy-chair of the *Applied Mathematics Department* (UMA) at ENSTA Paris since October 2019.
- P. Ciarlet is coordinator of the *Mathematics in Computational Science and Engineering Program* of the Mathematics Hadamard Labex (LMH).
- E. Bécache is a deputy chair of the Doctoral School EDMH since December 2019.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

The permanent members of POEMS are involved in the engineering program at ENSTA Paris, the master program *"Analyse, Modélisation et Simulation"* (AMS) and the master program *"Modélisation et Simulation en Mécanique des Structures et Systèmes Couplés"* (MS2SC) of Université Paris-Saclay.

Eliane Bécache

- *Fonctions de variable complexe*, ENSTA (1st year)
- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA (1st year)
- *La méthode des éléments finis*, ENSTA (2nd year) and Master AMS (M1)
- *Analyse et approximation par éléments finis d'EDP*, ENSTA (2nd year) and Master AMS (M1)
- *Résolution des problèmes de diffraction par équations intégrales*, ENSTA (3rd year), Master AMS (M2) and Master MS2SC (M2)

Marc Bonnet

- *Problème inverses et Identification*, Master MS2SC (M2)

Anne-Sophie Bonnet-Ben Dhia

- *Fonctions de variable complexe*, ENSTA (1st year)
- *Théorie spectrale des opérateurs autoadjoints*, ENSTA (2nd year) and Master AMS (M1)
- *Propagation et diffraction dans les guides d'ondes*, ENSTA (3rd year) and Master AMS (M2)
- *Non Destructive Testing*, Master "Acoustical Engineering" (M2)
- *Propagation des ondes élastiques dans les solides*, Master MS2SC (M2)

Laurent Bourgeois

- *Outils élémentaires pour l'analyse des équations aux dérivées partielles*, ENSTA (1st year)
- *Fonctions de variable complexe*, ENSTA (1st year)
- *Complétion de données et identification dans les problèmes gouvernés par des équations aux dérivées partielles*, ENSTA (3rd year) and Master AMS (M2)

Stéphanie Chaillat

- *Introduction à l'environnement UNIX*, ENSTA (1st year)
- *Systèmes d'exploitation*, ENSTA (1st year)
- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA (1st year)
- *Résolution des problèmes de diffraction par équations intégrales*, ENSTA (3rd year), Master AMS (M2) and Master MS2SC (M2)
- *Equations intégrales et multipôles rapides*, Ecole doctorale MODES (Univ. Paris Est, Marne la Vallée)

Colin Chambeyron

- *Remise à niveau en maths*, Licence (1st year), Paris-Dauphine University
- *Outils mathématiques*, Licence (L1), Paris-Dauphine University
- *Analyse - Optimisation*, Licence (L1), Paris-Dauphine University
- *Algèbre linéaire*, Licence (L2), Paris-Dauphine University

Patrick Ciarlet

- *Analyse et approximation par éléments finis d'EDP*, ENSTA (2nd year) and Master AMS (M1)
- *Préformation filière ModSim*, ENSTA (3rd year)
- *Modèles mathématiques et leur discrétisation en électromagnétisme*, ENSTA (3rd year) and Master AMS (M2)

Luiz Faria

- *La méthode des éléments finis*, ENSTA (2nd year) and Master AMS (M1)

Sonia Fliss

- *La méthode des éléments finis*, ENSTA (2nd year) and Master AMS (M1)
- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA (1st year)
- *Homogénéisation périodique*, ENSTA (3rd year), Master AMS(M2), Masters ANEDP, M4S
- *Propagation des ondes dans des milieux périodiques*, ENSTA (3rd year) and Master AMS (M2)

Laure Giovangigli

- *Introduction aux probabilités et aux statistiques*, ENSTA (1st year)
- *Martingales et algorithmes stochastiques*, ENSTA (2nd year)
- *Calcul stochastique*, ENSTA (3rd year) and Master MMMEF (M2)

Christophe Hazard

- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA (1st year)
- *Théorie spectrale des opérateurs autoadjoints*, ENSTA (2nd year) and Master AMS (M1)

Patrick Joly

- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA (1st year)
- *Fonctions de variable complexe*, ENSTA (1st year)
- *Analyse fonctionnelle*, ENSTA (2nd year) and Master AMS (M2)
- *Propagation des ondes dans des milieux périodiques*, ENSTA (3rd year) and Master AMS (M2)

Maryna Kachanovska

- *Fonctions de variable complexe*, ENSTA (1st year)
- *Analyse fonctionnelle*, ENSTA (2nd year) and Master AMS (M1)
- *Modèles mathématiques et leur discrétisation en électromagnétisme*, ENSTA (3rd year) and Master AMS (M2)

Nicolas Kielbasiewicz

- *Programmation scientifique en C++*, ENSTA (2nd year) and Master AMS (M1)
- *Projet de simulation numérique*, ENSTA (2nd year) and Master AMS (M1)
- *Calcul scientifique parallèle*, ENSTA (3rd year) and Master AMS (M2)

Eric Lunéville

- *Introduction au calcul scientifique*, ENSTA (2nd year).
- *Programmation scientifique en C++*, ENSTA (2nd year) and Master AMS (M1)
- *Projet de simulation numérique*, ENSTA (2nd year) and Master AMS (M1)
- *Propagation et diffraction dans les guides d'ondes*, ENSTA (3rd year) and Master AMS (M2)

Jean-François Mercier

- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA (1st year)
- *Fonctions de variable complexe*, ENSTA (1st year)
- *Théorie spectrale des opérateurs autoadjoints*, ENSTA (2nd year) and Master AMS (M1)

Axel Modave

- *Calcul scientifique à haute performance*, ENSTA (2rd year) and Master AMS (M1)
- *Calcul scientifique parallèle*, ENSTA (3rd year) and Master AMS (M2)

9.2.2. Supervision

PhD: Yohanes Tjandrawidjaja, *"Quelques contributions à l'analyse de la Half-Space Matching Method pour les problèmes de diffraction et son extension aux plaques 3D élastiques"*, December 2019, A.-S. Bonnet-Ben Dhia, S. Fliss and V. Baronian

PhD in progress: Sandrine Paolantoni, *"Analyse spectrale et simulation numérique de la diffraction électromagnétique par des métamatériaux"*, October 2016, C. Hazard

PhD in progress: Emile Parolin, *"Non overlapping domain decomposition methods with non local transmission conditions for electromagnetic wave propagation"*, October 2017, P. Joly and X. Claeys

PhD in progress: Clément Bénéteau, *"Asymptotic analysis of time harmonic Maxwell equations in presence of metamaterials"*, October 2017, S. Fliss and X. Claeys

PhD in progress: Hajer Methenni, *"Mathematical modelling and numerical method for the simulation of ultrasound structural health monitoring of composite plates"*, October 2017, S. Fliss and S. Impériale

PhD in progress: Damien Mavaleix-Marchessoux, *"Modeling of the fluid-structure interaction resulting from a remote underwater explosion"*, December 2017, M. Bonnet and S. Chaillat

PhD in progress: Nicolas Trafny, *"Development of semi-analytical models to predict the noise produced by turbulence-edges interactions"*, April 2018, J.-F. Mercier and B. Cotté

PhD in progress: Damien Chicaud, *"Méthodes de décomposition de domaine pour la résolution de problèmes harmoniques d'ondes électromagnétiques en milieux complexes"*, October 2018, P. Ciarlet and A. Modave

PhD in progress: Mahran Rihani, *"Équations de Maxwell en présence de méta-matériaux"*, November 2018, A.-S. Bonnet-Ben Dhia and L. Chesnel

PhD in progress: Akram Beni Hamad, *"Propagation d'ondes électromagnétiques dans les cables coaxiaux"*, Septembre 2019, S. Imperiale, P. Joly and M. Khenissi

PhD in progress: Jean-François Fritsch, *"Imagerie dans les guides d'ondes enfouis"*, Octobre 2019, L. Bourgeois and C. Hazard

PhD in progress: Amandine Boucart *"Modélisation d'une couche mince de nanoparticules réparties aléatoirement pour les ondes électromagnétiques*, Octobre 2019, S. Fliss and L. Giovangigli

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- A.-S. Bonnet-Ben Dhia is a member of the *bureau du comité des équipes-projets* (BCEP)
- P. Joly is a member of the *commission consultative paritaire scientifique* of Inria
- M. Kachanovska is a member of the *comité scientifique* of Inria-Saclay

9.3.2. Education

- Permanent members of POEMS are involved in the management of the engineering program at ENSTA Paris, the program in applied mathematics at IP Paris, the master 2 program *"Analyse, Modélisation et Simulation"* (M1 AMS) and the master 2 program *"Modélisation et Simulation en Mécanique des Structures et Systèmes Couplés"* (M2 MS2SC) of Université Paris-Saclay:
  – M. Bonnet: co-chair of the M2 MS2SC;
  – L. Bourgeois: co-chair 1A ENSTA until August 2019; co-responsible 2A ENSTA since Septembre 2019; co-chair of the M1 in applied mathematics since Septembre 2019;
  – P. Ciarlet: co-chair 3A ENSTA; deputy head of the M2 AMS until August 2019; coordinator of the master program in applied mathematics at IP Paris;
  – S. Fliss: co-chair of the M2 AMS since septembre 2019.

9.3.3. Interventions

- P. Joly presented a talk entitled *"Mathématiques autour de la musique et d'un piano"* during a scientific session at the *Musée des arts et métiers* (March 12, 2019 at Paris) and at the IECL (October 17, 2019 at Nancy).

<p align="center" style="color:red">**QUANTIC Project-Team**</p>

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Journal

8.1.1.1. Member of the Editorial Boards

Pierre Rouchon is member of the editorial board of Annual Reviews in Control.

8.1.1.2. Reviewer - Reviewing Activities

- Philippe Campagne-Ibarcq was a reviewer for Physical Review Letters.
- Zaki Leghtas was a reviewer for Physical Review Letters, Physical Review X and Nature Physics.
- Alain Sarlette was a reviewer for several automatic control and dynamical systems journals and conferences, as well as for Physical Review Journals

8.1.2. Invited Talks

- Philippe Campagne-Ibarcq : GDR-IQFA (Groupement de Recherche sur l'Ingénierie Quantique, des Aspects Fondamentaux aux Applications).
- Jeremie Guillaud: CEA Leti innovation day, Grenoble.
- Jeremie Guillaud: Byron Bay Quantum Workshop on Bosonic Error-Correcting Codes, Australia.
- Zaki Leghtas: GDR Physique Mésoscopique, Aussois.
- Zaki Leghtas: CIFAR Workshop on Quantum Cavities, Jouvence, Canada.
- Zaki Leghtas: American Physical Society march meeting, Boston, USA.
- Zaki Leghtas: Les Houches summer school on Quantum Information Machines.
- Zaki Leghtas: CEA Leti innovation day, Grenoble.
- Zaki Leghtas: Oulu university, Finland.
- Zaki Leghtas: Quantum and neuromorphic computing, C2N Saclay.
- Mazyar Mirrahimi: Lecture series at Les Houches summer school on Quantum Information Machines.
- Mazyar Mirrahimi: Conference on "Marching towards quantum supremacy", Princeton Univ., USA.
- Mazyar Mirrahimi: Conference for "20'th anniversary of superconducting qubits", Tsukuba, Japan.
- Pierre Rouchon: First Quantum Science, Engineering and Technology (qSET) conference, UNSW Canberra, Australia.
- Pierre Rouchon: IFAC Mechatronics and Nolcos Conference, Semi-plenary speaker, Vienna, Austria.
- Pierre Rouchon: 21-hour course on quantum control in the International Graduate School on Mathematical Control, Mathematical College Sichuan University, Chengdu, China.
- Pierre Rouchon: 6-hour course on flat system in the 8eme École d'été de mécanique théorique à destination des doctorants et chercheurs en Mécanique, Quiberon.
- Alain Sarlette: GANIL (Grand Accélérateur National d'Ions Lourd), Caen.
- Alain Sarlette: CIGREF (Club Informatique des Grandes Entreprises Françaises), Paris.
- Alain Sarlette has given an overview of the mathematics involved in quantum dynamics at Ghent University at several occasions.

8.1.3. Scientific Expertise

- Pierre Rouchon is a member of the scientific committee of LAGEP (Laboratoire d'Automatique et de Génie des Procédés) since 2017.

- Pierre Rouchon is a member of the "Conseil Scientifique du DIM Math Innov" since 2017.

- Pierre Rouchon is a member of the "Conseil de la recherche de PSL " since 2016.

- Mazyar Mirrahimi is the co-president of Inria's comité des emplois scientifiques.

- Mazyar Mirrahimi was the vice-president of ANR Comité d'Evaluation Scientifique on Quantum Technologies.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Cycle Ingénieur : Zaki Leghtas, Quantum Mechanics and Statistical Physics, Mines ParisTech, 12 hours, France.

Cycle Ingénieur : Zaki Leghtas, Quantum Computing, Mines ParisTech, 20 hours, France.

Cycle ingénieur: Alain Sarlette, Probabilities and Stochastic Processes, 24 hours TD, Mines Paristech, France.

Master: Alain Sarlette, Robotics, 24 hours, Ghent University, Belgium.

Cycle Ingénieur : Mazyar Mirrahimi, Automatic control with Applications in Robotics and in Quantum engineering, 8 hour amphi and 16 hours TD, 3rd year, Ecole Polytechnique, France.

Cycle Ingénieur : Mazyar Mirrahimi, Control of dynamical models, 30 hours TD, 2nd year, Ecole Polytechnique, France.

Cycle Ingénieur : Mazyar Mirrahimi, Module algorithmique quantum control, 24 hours TD, 2nd year, Ecole Polytechnique, France.

Master: Mazyar Mirrahimi and Pierre Rouchon, Dynamics and control of quantum systems, 18 hours amphi, M2, Sorbonne Université, France.

8.2.2. Supervision

PhD in progress : Michiel Burgelman, A systematic study of strongly driven and dissipative quantum systems towards high-accuracy quantum control designs, advisors: Pierre Rouchon and Alain Sarlette, starting date: Nov 2018.

PhD in progress : Jérémie Guillaud, Fault-tolerant quantum computation with cat-qubits, advisor: Mazyar Mirrahimi, starting date: Nov 2017.

PhD in progress : Vincent Martin, Fault-tolerance of quantum systems under continuous-time feedback stabilization, advisor: Mazyar Mirrahimi and Alain Sarlette, starting date: Oct 2018.

PhD in progress: Raphaël Lescanne, Engineering Multi-Photon Dissipation In Superconducting Circuits For Quantum Error Correction, advisors: Zaki Leghtas and Takis Kontos, starting date Sept 2016.

PhD in progress: Marius Villiers, Probing the spin entanglement of single Cooper pair, advisors: Zaki Leghtas and Takis Kontos, starting date: September 2019.

PhD in progress: Camille Berdou, A cat-qubit repetition code, advisors: Zaki Leghtas and Pierre Rouchon, starting date Sept 2019.

PhD in progress: Christian Siegele, Quantum error correction with grid states of light, advisors: Philippe Campagne-Ibarcq and Mazyar Mirrahimi.

PhD: Lucas Verney, Strongly driven quantum Josephson circuits, advisors: Zaki Leghtas and Mazyar Mirrahimi, Defended on July 11th 2019.

PhD: Gerardo Cardona Sanchez, Exponential stabilization of quantum systems subject to non-demolition measurements in continuous time, advisors: Pierre Rouchon and Alain Sarlette, Defended on October 30th 2019.

8.2.3. Juries

- Zaki Leghtas was a PhD opponent of Iivari Pietikainen, Oulu Finland.

- Zaki Leghtas was a PhD jury member of Romain Albert, CEA Grenoble.

- Mazyar Mirrahimi was an examiner in the PhD defense of Filippo Vicentini, Paris Diderot University.

- Mazyar Mirrahimi was an examiner in the HDR defense of Igor Dotsenko, Collège de France.

- Pierre Rouchon was reviewer for the Habiliation thesis of Hector Ramirez Estay, Université de Franche-Comté.

- Pierre Rouchon was a reviewer of the PhD thesis of Andreas Deutschmann (TU Vienna), Amira Amraoui (Université de Nice), Yuanlong Wang (University of New South Wales in Canberra).

- Pierre Rouchon was a committee member for the PhD thesis of Christophe Zhan (Sorbonne Université), Vincent Metillon (ENS Paris), Yahao Chen (Universté de Rouen), Weichao Liang (Université Paris-Saclay).

- Alain Sarlette has been member of the PhD jury of Nicolas Augier (Ecole Polytechnique) and of Estelle Massart (Université Catholique de Louvain-la-Neuve).

8.3. Popularization

8.3.1. Articles and contents

- Zaki Leghtas article in Usbek and Rica (https://usbeketrica.com/article/aucun-etat-veut-rater-coche-ordinateur-quantique)

8.3.2. Interventions

- Zaki Leghtas: Pint of Science on quantum computing

<p style="text-align:center">**RANDOPT Project-Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Anne Auger: general chair of the ACM-GECCO 2019 conference that took place in July in Prague and welcomed ca. 700 participants.

10.1.1.2. Member of the Organizing Committees

- Dimo Brockhoff: co-organizer of the Lorentz Center Workhop "MACODA: Many Criteria Optimization and Decision Analysis", September 2019, Leiden, The Netherlands, 42 participants

- Anne Auger, Dimo Brockhoff, Nikolaus Hansen, and Konstantinos Varelas: co-organizers of the Black-Box Optimization Benchmarking workshop (BBOB) at the ACM-GECCO 2019 conference.

- Anne Auger: Organizer of an **invited session** on *Recent Advances on Randomized Derivative Free Optimization* at the EURO conference, Dublin.

10.1.2. Scientific Events: Selection

10.1.2.1. Reviewer

- Dimo Brockhoff and Nikolaus Hansen: ACM-GECCO 2019

10.1.3. Dagstuhl seminar invitations

- Anne Auger, Dimo Brockhoff and Nikolaus Hansen invited at the Dagstuhl Seminar 19431 on "Theory of Randomized Optimization Heuristics", October 2019

- Dimo Brockhoff invited at the Dagstuhl Seminar 20031 on "Scalability in Multiobjective Optimization", January 2020

10.1.4. Journal

10.1.4.1. Member of the Editorial Boards

- Anne Auger, Dimo Brockhoff and Nikolaus Hansen: Associate Editor of the ACM Transactions on Evolutionary Learning and Optimization

- Anne Auger and Nikolaus Hansen: Associate Editor of the Evolutionary Computation Journal

- Anne Auger is guest editor of an Algorithmica special issue of papers selected from the ACM-GECCO'2018 theory track

- Anne Auger is guest editor of the IEEE Transactions on Evolutionary Computation special issue on Theoretical Foundations of Evolutionary Computation

10.1.4.2. Reviewer - Reviewing Activities

- Dimo Brockhoff: reviewed papers for IEEE Transactions on Evolutionary Computation (IEEETEC), European Journal of Operational Research (EJOR), Evolutionary Computation, and Journal of Global Optimization

10.1.5. Invited Talks

- Dimo Brockhoff: "Quality Indicator Maximization in Multiobjective Optimization Via Single-Objective Solvers: Unflattened Hypervolume Improvement in the Sofomore Framework", Jozef Stefan Institute, Ljubljana, Slovenia, April 2019

- Nikolaus Hansen: "How to Evolve Gradient Descent into Evolution Strategies and CMA-ES", Journée de Rentrée du CMAP, Ecole polytechnique, Paris, October 2019

- Nikolaus Hansen: "How to Evolve Gradient Descent into Evolution Strategies and CMA-ES", Symposium on Evolutionary Algorithms: Back to the Future and Beyond—Traversing the Ever-Evolving Landscape of Evolutionary Algorithms, Delft, The Netherlands, September 2019

- Nikolaus Hansen: Keynote lecture at the Workshop on Machine-Learning-Assisted Image Formation entitled "From Gradient-Based to Evolutionary Optimization", Nice, France, June 2019

- Anne Auger: Convergence Results of Adaptive Evolution Strategies: an Overview, Lifeware seminar, January 2019

- Anne Auger: COMO-CMA-ES a linearly convergent multi-objective solver, ICCOP conference, Berlin

10.1.6. Leadership within the Scientific Community

- Anne Auger, Elected Member of the ACM-SIGEVO executive board

- Dimo Brockhoff: member of the International Advisory Committee for EMO-2019 in East Lansing, USA

- Anne Auger, member of the conseil de laboratoire of the CMAP, Ecole Polytechnique.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Anne Auger, "Optimization without gradients", 22.5h ETD, niveau M2 (Optimization Master of Paris-Saclay)

Master: Dimo Brockhoff, "Algorithms and Complexity", 36h ETD, niveau M1/M2 (joint MSc with ESSEC "Data Sciences & Business Analytics"), CentraleSupelec, France

Master: Anne Auger and Dimo Brockhoff, "Introduction to Optimization", 31.5h ETD, niveau M2 (MSc Informatique - Parcours Apprentissage, Information et Contenu (AIC)), U. Paris-Saclay, France

Master: Anne Auger and Dimo Brockhoff, "Advanced Optimization", 31.5h ETD, niveau M2 (MSc Informatique - Parcours Apprentissage, Information et Contenu (AIC)), U. Paris-Saclay, France

10.2.2. Tutorials

- Dimo Brockhoff: tutorial on Evolutionary Multiobjective Optimization, 3h ETD, niveau PhD, ACM-GECCO conference, Czech Republic

- Nikolaus Hansen: tutorial "A Practical Guide to Experimentation", 3h ETD, niveau PhD, ACM-GECCO conference, Czech Republic

- Nikolaus Hansen: tutorial on "CMA-ES and Advanced Adaptation Mechanisms", 3h ETD, niveau PhD, ACM-GECCO conference, Czech Republic, with Youhei Akimoto

10.2.3. Supervision

- PhD in progress: Konstantinos Varelas, "Large-Scale Optimization, CMA-ES and Radar Applications", Dec. 2017, Anne Auger and Dimo Brockhoff

- PhD in progress: Cheikh Touré, "Linearly Convergent Multi-objective Stochastic Optimizers", Dec. 2017, Anne Auger and Dimo Brockhoff

- PhD in progress: Paul Dufossé, "Constrained Optimization and Radar Applications", Oct. 2018, Nikolaus Hansen

- PhD in progress: Marie-Ange Dahito, "Mixed-Integer Blackbox Optimization for Multiobjective Problems in the Automotive Industry", Jan 2019, Dimo Brockhoff and Nikolaus Hansen

- PhD in progress: Eugénie Marescaux, Theoretical Analysis of convergence of multi-objective solvers (2019–), supervisor A. Auger
- PhD in progress: Alann Cheral, "Black-box optimization for the optimization of hyperspectral bandwidth for anomaly detection" (2019–), supervisor A. Auger
- Jingyun Yang, Ecole Polytechnique, since September 2019
- Eugenie Marescaux, ENSTA, April–September 2019
- Julien Bonneville, U. Versailles, March–August 2019

10.2.4. Juries

- Anne Auger: member of the **PGMO PhD award** scientific committee. Representing the committee for the PGMO PhD award ceremony at the PGMO days
- Dimo Brockhoff: jury member for the PhD thesis of David Gaudrie, École des Mines de Saint-Étienne, October 2019

10.3. Popularization

- Scientific mediation by Cheikh Touré: presentation on poker in the context of the visit of college and high school students to Inria Saclay

10.3.1. Internal or external Inria responsibilities

- Anne Auger: member of the BCEP of Saclay.
- Dimo Brockhoff: member of the CDT committee of Saclay (since February 2019).

RAPSODI Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

M. Herda co-organized the yearly Journée de la Fédération de Recherche Mathématique du Nord-Pas-de-Calais which took place on October 15 in Lille. This one-day conference brought together all the maths research laboratories from the Hauts-de-France region and gave the opportunity to new permanent members to present their research.

E. Creusé was part of the organizing committee of the first Rencontres Mathématiques Valenciennoises, that were held on March 13. This meeting was organized for maths students at Université Polytechnique Hauts-de-France as well as for high-school students of Lycée Wallon in Valenciennes. Several researchers presented some applications of mathematics in industry as well as in academic research. This meeting gathered around 500 participants.

T. Rey organized the yearly ANEDP team day at Laboratoire Paul Painlevé on December 17.

C. Cancès and T. Rey co-organized mini-symposia on, respectively, (i) cross-diffusion systems and (ii) novel time discretization methods and moment models for kinetic equations at ICIAM 2019 in Valencia. S. Lemaire co-organized a mini-symposium on polytopal methods at MAFELAP 2019 in Brunel University, London.

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

C. Chainais-Hillairet is a member of the editorial board of the North-Western European Journal of Mathematics.

10.1.2.2. Reviewer - Reviewing Activities

RAPSODI team members are regular reviewers for all the main international journals in numerical analysis/scientific computing and PDEs.

10.1.3. Invited Talks

C. Calgaro was one of the speakers of the seventh Amarena Days held in Amiens.

C. Cancès was invited to give a talk in Paris during the closure workshop of the MANON common laboratory (CEA Saclay / LJLL Sorbonne Université). He was also invited to give a talk in Kalvåg (Norway) during the workshop Analysis and Computation of Coupled Systems. He finally gave seminars in Compiègne and at the University of Lisbon.

C. Chainais-Hillairet was an invited plenary speaker at the POEMs conference held at CIRM in Marseille, and for the Journées Corrosion MaNu 2019 held in Orsay. She also gave a talk at ENUMATH 2019 that was held in Egmond aan Zee. She finally gave seminars in Nice, Orsay and Paris (Laboratoire Jacques-Louis Lions), as well as a talk for the ANEDP team day.

F. Chave was an invited speaker in ENUMATH 2019 that was held in Egmond aan Zee. He also presented a poster at the POEMs conference held at CIRM in Marseille. He finally gave a seminar for the ANEDP team at Laboratoire Paul Painlevé.

B. Gaudeul was an invited speaker of the Journées Corrosion MaNu 2019 held in Orsay. He also presented a poster at the conference Numerical Methods for Multiscale Models arising in Physics and Biology held in Nantes. He finally gave a seminar at WIAS Berlin, as well as a talk for the PhD students seminar in Lille.

M. Herda was an invited speaker in the workshop Analytical and Computational Problems for Mixtures and Plasma Dynamics which took place at the Hausdorff Research Institute for Mathematics in Bonn in the framework of the Junior Trimester Program in Kinetic Theory. He was also one of the speakers of the mini-symposium "Novel time discretization methods and moment models for kinetic equations" co-organized by T. Rey at ICIAM 2019 in Valencia. Finally, he gave a talk in the Applied PDEs seminar of Imperial College London.

I. Lacroix-Violet was an invited speaker in the workshop Women in PDEs that was held in Vienna. She also gave several seminars in Université Paris-Est Créteil, Nancy, Dijon, and Lyon, as well as a talk for the ANEDP team day.

S. Lemaire was an invited speaker at the GAMM 2019 conference held in Vienna, and for the POEMs conference held at CIRM in Marseille. He also gave a talk for the yearly Journée de la Fédération de Recherche Mathématique du Nord-Pas-de-Calais held in Lille, and a seminar at ENSTA ParisTech.

B. Merlet was an invited speaker of the fourth Journées Optimisation de Formes et Applications held in Palaiseau. He also gave two seminars in École Polytechnique and at the University of Lisbon, as well as a talk for the ANEDP team day.

T. Rey was an invited plenary speaker in the Summer School Trails in kinetic theory: foundational aspects and numerical methods from the Junior Trimester Program in Kinetic Theory of the Hausdorff Research Institute for Mathematics, held in Bonn. He was also one of the speakers of the conference Numerical Methods for Multiscale Models arising in Physics and Biology held in Nantes. He finally gave a colloquium in the mathematics department of Université Paris-Est Créteil, and a seminar at ENS Ker Lann in Rennes.

A. Zurek was an invited speaker of the Journée EDP held in Calais. He was also a contributed speaker in the conference Numerical Methods for Multiscale Models arising in Physics and Biology held in Nantes. He finally gave a talk during the thirteenth Journée des Doctorants en Mathématiques du Nord-Pas-de-Calais in Lens.

10.1.4. Leadership within the Scientific Community

C. Cancès is the head of the French Research Group GdR MaNu on Mathematics for Nuclear Energy (funded by CNRS's INSMI).

He is also the leader of the task "Numerical methods for high-performance computing of coupled processes" within the EURAD project (H2020, EJP COFUND); cf. Section 9.3 .

10.1.5. Research Administration

C. Calgaro is a member of the Conseil de Département de Mathématiques. She has been a member of the CNU 26 until September.

C. Cancès is a member of the Scientific Board of the Inria Lille - Nord Europe research center.

Until September, C. Chainais-Hillairet has been a member of the Conseil de Département de Mathématiques. Since September, she is a member of the Conseil de la Faculté des Sciences et Technologies of Université de Lille. She also joined in January the CNRS evaluation committee of the Laboratoire de Mathématiques de Reims.

B. Gaudeul is the delegate of the PhD students at the Commission Mixte in Mathematics of Université de Lille.

I. Lacroix-Violet is an elected member of the Conseil du Laboratoire Paul Painlevé. She is also a member of the Comité d'Éthique de la Recherche.

S. Lemaire is a member of the Commission de Développement Technologique of the Inria Lille - Nord Europe research center.

B. Merlet is an elected member of the Conseil du Laboratoire Paul Painlevé.

T. Rey is also an elected member of the Conseil du Laboratoire Paul Painlevé. T. Rey and M. Herda (since September) are in charge of the organization of the weekly seminar of the ANEDP team at the Laboratoire Paul Painlevé. T. Rey is a member of the team of Opération Postes.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

RAPSODI team members are strongly involved in teaching at Université de Lille. C. Calgaro is in charge of the Master of Mathematical Engineering. I. Lacroix-Violet is responsible of the IESP2A's third year at Polytech Lille. B. Merlet is in charge of the Master 2 of Scientific Computing. E. Creusé is the director of the Mathematics Department of the Université Polytechnique Hauts-de-France.

In 2019, C. Cancès gave practicals (16h) of scientific computing at the École Centrale de Lille. He also gave lectures (32h) on fundamental notions in mathematics in the framework of the newly created Master on Data Sciences of the Université de Lille and the École Centrale de Lille. F. Chave gave practicals to first-year students at Polytech Lille. M. Herda gave lectures (26h) on mathematical methods for signal processing in the Master of Numerical and Statistical Engineering of Université de Lille. S. Lemaire gave lectures (32h) on mathematical tools for simulation in the Master 2 of Scientific Computing at Université de Lille.

C. Chainais-Hillairet gave lectures about "Finite volume methods, dissipative problems, and long-time behavior" in 2 Summer Schools, at Le Lioran (GdR EGRIN) in June, and at CIRM in Marseille (CEMRACS 2019) in July.

10.2.2. Supervision

Post-doc in progress: F. Chave, on "High-order polytopal discretization methods for electromagnetism", since 12/01/2018; supervisors: S. Lemaire and E. Creusé.

PhD in progress: A. Nahas, on "Vortices in Bose–Einstein condensates", since 09/01/2019; advisors: I. Lacroix-Violet and G. Dujardin (Inria Lille - Nord Europe). The thesis is half funded by the LabEx CEMPI.

PhD in progress: S. Bassetto, on "Towards a more robust and accurate treatment of capillary effects in multiphase flow simulations in porous media", since 01/01/2019; advisors: C. Cancès, G. Enchéry and Q.-H. Tran (IFPEN).

PhD in progress: B. Gaudeul, on the "Numerical approximation of cross-diffusion systems arising in physics and biology", since 09/01/2018; advisors: C. Chainais-Hillairet and C. Cancès.

PhD: A. Zurek defended his PhD thesis [11] entitled "Problèmes à interface mobile pour la dégradation de matériaux et la croissance de biofilms : analyse numérique et modélisation" on September 26; advisors: C. Chainais-Hillairet and B. Merlet.

PhD: C. Colin defended her PhD thesis [12] entitled "Analyse et simulation numérique par méthode combinée Volumes Finis - Éléments Finis de modèles de type faible Mach" on May 10; advisors: E. Creusé and C. Calgaro.

M2 Modélisation - Optimisation - Sécurité group research in progress (Université Polytechnique Hauts-de-France): L. Romanowicz and A. Violet, on the "Numerical study of the rise of a suspension bridge", 2019-2020; advisor: E. Creusé.

M2 internship: L. Maisonneuve, on the "Mathematical modeling of a knowledge model in structured populations", from April to September; advisors: T. Rey, S. Billiard and M. Derex.

M2 internship: A. Nahas, on the "Numerical study of the local minimizers of a Bose–Einstein energy functional in 2D", from January to July; advisors: I. Lacroix-Violet and G. Dujardin (Inria Lille - Nord Europe).

M2 internship: N. Aghouzzaf, on "Keller–Segel equations for chemotaxis", from December 2018 to July; advisor: T. Rey.

M1 internship: Q. Fourche, on "Spectral moment methods for linear kinetic equations", from June to July; advisor: T. Rey.

M1 internship: M. Jonval, on "Nonlinear numerical schemes for drift-diffusion equations", from June to July; advisor: C. Chainais-Hillairet.

M1 CHPS group research (Université de Lille): M. Ghestin and A. Rotolo, on "Systems of interacting particles and their mean-field limits", from February to May; advisor: T. Rey.

M1 MAS group research (Université de Lille): C. Germain and A. Jossien, on "Deterministic predictive models of the average annual temperature in Morocco in 2019", 2019; advisor: C. Calgaro.

M1 Modélisation - Optimisation - Sécurité group research (Université Polytechnique Hauts-de-France): I. Kahiyehmoumin, A. Ndao and M. Fall, on a "Domain decomposition method for the finite difference approximation of a diffusion problem", 2019; advisor: E. Creusé.

L3 internship: G. Helbecque, on the "Numerical simulation of charged particles in a strong magnetic field", from April to May; advisor: M. Herda.

10.2.3. *Juries*

C. Calgaro was a jury member for the PhD defense of M. Tsegmid (Université du Littoral-Côte-d'Opale). She is also a member of the Jury de l'Agrégation de Mathématiques, which is a national hiring committee for the highest level of high-school teachers.

C. Cancès reported on T. Beltzung's (CEA / UVSQ), J. W. Both's (University of Bergen, Norway), and D. Shylaja's (Monash University / ITT Bombay, Australia / India) PhD theses. He is also a member of the Jury de l'Agrégation de Mathématiques.

C. Chainais-Hillairet reported on A. Gerstenmayer's (T.U. Vienna) PhD thesis. She was also a jury member for the PhD defenses of L. Boittin (Paris), C. Colin (Lille), R. Chalayer (Clermont-Ferrand), P. Mennuni (Lille), and M. Id Moulay (Pau). She finally was part of the selection committee for an associate professor (MCF) position at Orsay.

E. Creusé reported on P. Daniel's PhD thesis, defended on March 22 at Sorbonne Université, and entitled "Éléments finis hp-adaptatifs avec contraction d'erreur garantie et solveurs multi-niveaux inexacts". He was also a jury member for the PhD defenses of J. Tomezyk (Université Polytechnique Hauts-de-France) and G. Jeanmasson (Université de Bordeaux). He finally was part of the selection committee for an associate professor (MCF) position at Université Polytechnique Hauts-de-France.

B. Gaudeul was a jury member for the Tournoi Français des Jeunes Mathématiciennes et Mathématiciens.

I. Lacroix-Violet was a jury member for the PhD defense of I. Bensouilah (Lille), and for the habilitation of D. Sanchez (Toulouse).

B. Merlet reported on M. Bonafini's PhD thesis, defended on April 11 at the University of Trento (Italy), and entitled "Variational and convex approximations of 1-dimensional optimal networks and hyperbolic obstacle problems".

10.3. Popularization

C. Calgaro is in charge of the communication of the Laboratoire Paul Painlevé. She organized in 2019 various events to promote mathematics among young people:

- "Les mathématiciens de Lille fêtent les 80 ans du CNRS" (about 600 participants from high-school or Classes Préparatoires);
- a conference of E. Ghys for the presence of the Jury de l'Agrégation de Mathématiques in Lille (about 200 participants);
- les "Mathématiques itinérantes", a series of conferences in high-schools.

E. Creusé gave two popularization talks at Université Polytechnique Hauts-de-France:

- "Le calcul scientifique pour la simulation et le contrôle des écoulements" for the first Rencontres Mathématiques Valenciennoises in March;
- "Comment prévoir la population de poissons dans l'océan ou le déplacement d'oiseaux migrateurs dans le ciel ? Les maths nous répondent !" for the Semaine des Mathématiques 2019 in March.

M. Herda gave a talk at Inria Lille - Nord Europe for the internal scientific popularization event "30 minutes of Science" in January.

T. Rey was one of the four speakers of the event "Les mathématiciens de Lille fêtent les 80 ans du CNRS".

REALOPT Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- François Clautiaux: Conférence Dataquitaine (around 300 participants) in Bordeaux, February 2019
- François Clautiaux: Workshop on Integer Programming and Algorithms in Marne-La-Vallée, November 2019

10.1.1.2. Member of the Organizing Committees

- François Clautiaux: Conférence Dataquitaine (around 300 participants) in Bordeaux, February 2019
- François Clautiaux: Workshop on Integer Programming and Algorithms in Marne-La-Vallée, November 2019

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- François Clautiaux: Conference ROADEF 2019, Le Havre
- Pierre Pesneau: INOC 2019, in Avignon

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- François Clautiaux : editor for Open Journal on Mathematical Optimization (OJMO)

10.1.3.2. Reviewer - Reviewing Activities

- François Clautiaux : European Journal of Operational Research, Discrete Applied Mathematics, Discrete Optimization, International Transactions on Operations Research,
- Aurélien Froger: European Journal of Operational Research, Transportation Science, Computers & Operations Research, Journal of Heuristics
- Ruslan Sadykov: Mathematical Programming, Transportation Science, International Transactions of Operations Research, ACM Transactions on Parallel Computing, Integer Programming and Combinatorial Optimization conference

10.1.4. Invited Talks

- François Clautiaux: Invited talk at the ESICUP Workshop, in Mexico (April 10th, 2019)
- Aurélien Froger: Invited talk [10] at the 2nd International Workshop on Synchronisation in Transport, SynchroTrans 2019, in Nantes (September 10th, 2019)
- Ruslan Sadykov: Invited talk [12] at the 9th International Network Optimization conference, invited talk [11] at the POC Autumn School on Advanced BCP Tools

10.1.5. Leadership within the Scientific Community

François Clautiaux has been elected president of the French O.R. association, ROADEF.

10.1.6. Scientific Expertise

François Clautiaux has been expert for HCERES

François Clautiaux has been expert for the Flander's Innovation and Entrepreneurship Agency.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : François Clautiaux, Projet d'optimisation, L3, Université de Bordeaux, France

Licence : François Clautiaux, Grands domaines de l'optimisation, L1, Université de Bordeaux, France

Master : François Clautiaux, Introduction à la programmation en variables entières, M1, Université de Bordeaux, France

Master : François Clautiaux, Integer Programming, M2, Université de Bordeaux, France

Master : François Clautiaux, Algorithmes pour l'optimisation en nombres entiers, M1, Université de Bordeaux, France

Master : François Clautiaux, Programmation linéaire, M1, Université de Bordeaux, France

Master: Boris Detienne, Combinatoire et routage, ENSEIRB INPB

Licence : Boris Detienne, Optimisation, L2, Université de Bordeaux

Licence : Boris Detienne, Groupe de travail applicatif, L3, Université de Bordeaux

Master : Boris Detienne, Optimisation continue, M1, Université de Bordeaux

Master : Boris Detienne, Integer Programming, M2, Université de Bordeaux

Master : Boris Detienne, Optimisation dans l'incertain, M2, Université de Bordeaux

Licence : Aurélien Froger, Groupe de travail applicatif, L3, Université de Bordeaux, France

Master : Aurélien Froger, Optimisation dans les graphes, M1, Université de Bordeaux, France

Master : Aurélien Froger, Gestion des opérations et planification de la production, M2, Université de Bordeaux, France

Master : Ruslan Sadykov, Introduction to Constraint Programming, M2, Université de Bordeaux, France

Licence : Pierre Pesneau, Grands domaines de l'optimisation, L1, Université de Bordeaux, France

Licence : Pierre Pesneau, Programmation pour le calcul scientifique, L2, Université de Bordeaux, France

Licence : Pierre Pesneau, Optimisation, L2, Université de Bordeaux, France

DUT : Pierre Pesneau, Recherche Opérationnelle, DUT Informatique 2ème année, Université de Bordeaux, France

Master : Pierre Pesneau, Algorithmique et Programmation 1, M1, Université de Bordeaux, France

Master : Pierre Pesneau, Algorithmique et Programmation 2, M1, Université de Bordeaux, France

Master : Pierre Pesneau, Programmation linéaire, M1, Université de Bordeaux, France

Master : Pierre Pesneau, Integer Programming, M2, Université de Bordeaux, France

10.2.2. Supervision

HdR : Ruslan Sadykov, Modern Branch-Cut-and-Price, Université de Bordeaux, 4/12/2019.

PhD : Imen Ben Mohamed, Designing Two-Echelon Distribution Networks under Uncertainty [1], Université de Bordeaux, 27/05/2019, Walid Klibi (dir), Ruslan Sadykov (dir), François Vanderbeck (co-dir).

PhD in progress : Alena Shilova, Scheduling for Deep Learning Frameworks from October 2018, Olivier Beaumont (dir) and Alexis Joly (dir)

PhD in progress: Tobias Castanet, Use of Replication in Distributed Games from September 2018, Olivier Beaumont (dir), Nicolas Hanusse (dir) and Corentin Travers (dir).

PhD in progress : Guillaume Marques, Planification de tournées de véhicules avec transbordement en logistique urbaine : approches basées sur les méthodes exactes de l'optimisation mathématique, from September 2017, Ruslan Sadykov (dir)

PhD in progress : Gaël Guillot, Aggregation and disaggregation methods for hard combinatorial problems, from November 2017, François Clautiaux (dir) and Boris Detienne (dir).

PhD in progress : Orlando Rivera Letelier, Bin Packing Problem with Generalized Time Lags, from May 2018, François Clautiaux (dir) and Ruslan Sadykov (co-dir), a co-tutelle with Universidad Adolfo Ibáñez, Peñalolén, Santiago, Chile.

PhD in progress: Mohamed Benkirane, "Optimisation des moyens dans la recomposition commerciale de dessertes TER" from November 2016, François Clautiaux (dir), Boris Detienne (dir)

PhD in progress: Xavier Blanchot, "Accélération de la Décomposition de Benders à l'aide du Machine Learning : Application à de grands problèmes d'optimisation stochastique two-stage pour les réseaux d'électricité" from September 2019, François Clautiaux (dir), Aurélien Froger (co-dir)

PhD in progress: Johan Levêque, "Conception de réseaux de distributions urbains mutualisées en mode doux", from September 2018, François Clautiaux (dir), Gautier Stauffer (co-dir)

10.2.3. Juries

- François Clautiaux: external referee for the thesis of Arthur Kramer (Bologna), referee for the thesis of Arnaud Lazare (Université Paris Saclay) jury member for Simon Bélières (Université de Toulouse), Imen Ben Mohamed (Université de Bordeaux) jury member for the habilitation of Ruslan Sadykov (Université de Bordeaux)

- Boris Detienne: jury member for Ikram Bouras (Université de Montpellier) and Imen Ben Mohamed (Université de Bordeaux)

- Ruslan Sadykov: member of of the selection committee of the Maitre de Conference position (Université de Bordeaux)

10.3. Popularization

- Local events: Participation to "Journée emploi maths et interaction 2019". This day aims to bring together students, researchers and practitioners in mathematics in the Bordeaux area. https://uf-mi.u-bordeaux.fr/sites/jemi/

10.3.1. Interventions

- Participation to Circuit Scientifique Bordelais (Fête de la Science)
- Participation to the 80th anniversary of CNRS

SEQUEL Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

- the 1st Reinforcement Learning Summer Scool, July 1-12, 2019, Villeneuve d'Ascq
- the 3rd Vigil workshop at NeurIPS 2019

10.1.1.1. Member of the Organizing Committees

- F. Strub, co-organizer of the workshop "Visually Grounded Interaction and Language (ViGIL)" at NeurIPS 2019
- The whole SEQUEL team has organized RLSS

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Émilie Kaufmann: ALT
- Odalric-Ambrym Maillard: ICML, ECAI, SIF
- Philippe Preux: ECML, EGC, SFC

10.1.2.2. Reviewer

In 2019, we have reviewed submissions for: AI&Stats, NeurIPS, ALT, ICML, COLT, IJCAI, AAAI, CDC, ECAI

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

- Journal of Machine Learning Research
- Journal of Artificial Intelligence Research
- The Annals of Statistics
- Bernoulli
- IEEE Transactions on Knowledge and Data Engineering
- Machine Learning
- Information and Inference: A Journal of the IMA

10.1.4. Invited Talks

- E. Kaufmann
  - "Beyond Classical Bandit Tools for Monte-Carlo Tree Search", AAAI workshop on Reinforcement Learning for Games, Honolulu, Jan 2019
  - "New tools for Adaptive Testing and Applications to Bandit Problems", Machine Learning and Optimization Working Group, Ecole des Ponts, Feb 2019
  - "Generalized Likelihood Ratios Tests applied to Sequential Decision Making", Statistics Seminar, Agro ParisTech, Paris, May 2019
  - "Generalized Likelihood Ratios Tests applied to Sequential Decision Making", Machine Learning Seminar, University of Leiden, The Netherlands, May 2019
  - "Quelques outils statistiques pour la prise de décision séquentielle", Conférence plénière du GRETSI, Lille, Aug 2019

- "Practical algorithm for multi-player bandits", MAPLE workshop, Milan, Italy Sep 2019
- "Practical algorithm for multi-player bandits", Invited session of the Allerton Conference, Urbana-Champaign, USA Sep 2019

- Odalric-Ambrym Maillard:
  - "La prise de décision séquentielle au service de la société de demain", Euratechnologie, Lille, Feb 2019
  - "Change of mean detection, non-asymptotic delay and aggregation", 3rd non-stationary day, Institut Henry Poincaré, Paris, Mar 2019
  - "A tour of time-uniform concentration inequalities: Laplace, Peeling, Kernel", Workshop on empirical Processes and Applications to Statistics, Besançon, May 2019
  - "A tour of time-uniform concentration inequalities: Laplace, Peeling, Kernel", CWI, Amsterdam, The Netherlands, Jun 2019
  - "Reinforcement Learning: successes and promises", Ecole Polytechnique, Palaiseau, Nov 2019

- Philippe Preux:
  - A brief introduction to supervised learning and reinforcement learning, 1st humAIn seminar, Villeneuve d'Ascq, Feb 2019
  - "Sous le contrôle des bandits", AFCE, June 2019
  - Explainability in machine learning, 3rd humAIn seminar, Lille, June 2019
  - "Learning to act", ENS-Paris-Saclay, Conférence de rentrée, Sep 2019
  - "Apprentissage par renforcement : mythe et réalité", FOOR, Tourcoing, Nov 2019

- Jill-Jênn Vie:
  - "IA, éducation et formation", Hermès, Paris, Oct 2019
  - "JJ Vie's Factorization IV", LaBRI, Bordeaux, Nov 2019
  - "Deep Learning for Anime & Manga", Paris Open Source Summit, Dec 2019
  - "Deep Learning for Recommender Systems", Université Cergy-Pontoise, Dec 2019

- R. Gautron, O-A. Maillard, Ph. Preux, "Reinforcement learning for crop-management: a sequential decision-making under uncertainty approach", CGIAR convention, Hydebarad, India, Oct 2019

- Ph. Preux, M. Seurin, "L'IA, les données, ... et l'Homme dans tout ça ?", congress "Les données et leurs usages dans les technologies du numérique", Douai, Oct 2019

10.1.5. Scientific Expertise

- Émilie Kaufmann:
  - member of the hiring committee for an assistant professor in probability/statistics at Université Paris-Sud
- Odalric-Ambrym Maillard:
  - member of the hiring committee for CRCN at Inria Lille
- Philippe Preux:
  - member of the hiring committee for CRCN at Inria Rennes
  - member of the hiring committee for CRCN at Inria (national)
  - evaluation of submissions to ANRT (he also declined many such invitations due to lack of time, *e.g.* with ANR)

10.1.6. Research Administration

- Odalric-Ambrym Maillard is:

- – member of the CER at Inria Lille
- Philippe Preux is:
  - – "délégué scientifique adjoint" of the Inria center in Lille
  - – member of the Inria evaluation committee (CE)
  - – member of the Inria internal scientific committee (COSI)
  - – member of the scientific committee of CRIStAL until Jan 2019
  - – the head of the "Data Intelligence" thematic group at CRIStAL until Jan 2019

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Doctorat: Émilie Kaufmann and Odalric-Ambrym-Maillard, "Bandit algorithms I", RLSS Summer School, Lille, 9h, July 2019

Master: Émilie Kaufmann, "Data Mining", 36h, M1, Université de Lille, Jan-Apr 2019

Master: Émilie Kaufmann, "Reinforcement Learning", 24h, M2, Ecole Centrale de Lille, Nov 2019-Jan 2020

Master: Odalric-Ambrym Maillard, "Reinforcement Learning", 38h equivalent TD, M2, Ecole Polytechnique, Palaiseau, Jan-Mar 2019

Doctorat: Odalric-Ambrym Maillard, "Bandit algorithms II", RLSS Summer School, Lille, 9h, July 2019

Doctorat: Philippe Preux, "Reinforcement Learning", Fall School on AI (IA2) of the GDR IA (CNRS), Lyon, 3h, Oct 2019

Doctorat: Philippe Preux, "AI learns to act", MOMI, Sophia-Antipolis, 1h30, Feb 2019

10.2.2. Supervision

HdR: Odalric-Ambrym Maillard, Mathematics of Sequential Decision Making, Université de Lille, Feb 11, 2019

PhD: Lilian Besson, Multi-players Bandit Algorithms for Internet of Things Networks, Centrale-Supélec Rennes, Nov 20, 2019, supervisors: Christophe Moy (Université de Rennes) et Émilie Kaufmann

PhD: Ronan Fruit, Exploration–exploitation dilemma in Reinforcement Learning under various form of prior knowledge, Université de Lille, Nov 6, 2019, supervisor: Alessandro Lazaric

PhD: Nicolas Carrara, "Apprentissage par renforcement pour optimisation de systèmes de dialogue via l'adaptation à chaque utilisateur", Université de Lille, Dec 18, 2019, supervisor: Oliier Pietquin

PhD in progress: Dorian Baudry, "Efficient Exploration for Structured Bandits and Reinforcement Learning", since Nov 2019, supervisors: É. Kaufmann, O-A. Maillard

PhD in progress: Omar Darwiche Domingues, "Sequential Learning in Dynamic Environments", since Oct 2018, supervisors: É. Kaufmann, M. Valko

PhD in progress: Johan Ferret, "Explainable Reinforcement Learning via Deep Neural Networks", since Fall 2019, supervisor: Ph. Preux, O. Pietquin

PhD in progress: Yannis Flet-Berliac, "Deep reinforcement learning in stochastic and non stationary environments", since Oct 2018, supervisor: Ph. Preux

PhD in progress: Guillaume Gautier, DPPs in ML, started Oct 2016, defense scheduled in March 2020. Supervisors: R. Bardenet, M. Valko.

PhD in progress: Jean-Bastien Grill, "Création et analyse d'algorithmes efficaces pour la prise de décision dans un environnement inconnu et incertain", started Oct 2014, defended on Dec 19, 2019. Supervisors: R. Munos, M. Valko

PhD in progress: Nathan Grinsztajn, "Apprentissage par renforcement pour la résolution séquentielle de problèmes d'optimisation combinatoire incertains et partiellement définis", since Fall 2019, supervisor: Ph. Preux

PhD in progress: Léonard Hussenot, "Adversarial reinforcement learning: attacks and robustness", since Fall 2019, supervisor: Ph. Preux, O. Pietquin

PhD in progress: Édouard Leurent, "Autonomous vehicle control: application of machine learning to contextualized path planning", since Oct 2017, supervisors: O-A. Maillard, D. Effimov (Valse), W. Perruquetti (CRIStAL)

PhD in progress: Reda Ouhamma, "Automated feature representation", since Fall 2019, O-A. Maillard

PhD in progress: Pierre Perrault, "Online Learning on Streaming Graphs", since Sep 2017, supervisors: M. Valko, V. Perchet

PhD in progress: Sarah Perrin, "Reinforcement Learning in Mean Field Games", since Fall 2019, supervisors: O. Pietquin, R. Elie

PhD in progress: Hassan Saber, "Structured multi-armed bandits", since Oct 2018, Structured Multi-armed bandits, supervisor: O-A. Maillard.

PhD in progress: Mathieu Seurin, "Multi-scale rewards in reinforcement learning", since Oct 2017, supervisors: O. Pietquin, Ph. Preux

PhD in progress: Julien Seznec, "Sequential Learning for Educational Systems", since Mar 2017, supervisors: M. Valko, A. Lazaric, J. Banon

PhD in progress: Xuedong Shang, "Adaptive methods for optimization in stochastic environments", started Oct 2017, supervisors: É. Kaufmann, M. Valko

PhD in progress: Florian Strub, "Reinforcement Learning for visually grounded interaction", since Jan 2016, defense scheduled for Jan 2020, supervisors: O. Pietquin and J. Mary

PhD in progress: Kiewan Villatel, "Deep Learning for Conversion Rate Prediction in Online Advertising", started Oct 2017, aborted June 2019, supervisor: Ph. Preux

10.2.3. Juries

- Émilie Kaufmann:
  - Aristide Tossou, member of the jury, Chalmers University, Sweden, Nov 18, 2019
  - Rémi Degenne, member of the jury, Université Paris-Diderot, Dec 18, 2019
  - member of the Mathematics jury for the admission competition of ENS, section B/L
- Odalric-Ambrym Maillard:
  - Léonard Torossian, reviewer, Université Toulouse III, Dec 17, 2019.
- Philippe Preux:
  - Quentin Waymel (medical doctorate), member of the jury, Université de Lille, Jun 2019
  - Adrien Legrand, reviewer, Université de Picardie, Amiens, Nov 29, 2019
  - Erinc Merdivan, reviewer, Centrale-Supélec Metz, Dec 17, 2019
  - Nicolas Carrara, member of the jury, Université de Lille, Dec 18, 2019
- Michal Valko:
  - Aristide Tossou, opponent, Chalmers University, Sweden, Nov 18, 2019

10.3. Popularization

10.3.1. Articles and contents

- Philippe Preux:

–   interviewed by *Le Monde* pulished in Sep 2019

–   interview on I-SITE project B4H, Inria

10.3.2. Education

- Odalric-Ambrym Maillard:

    –   "Reinforcement Learning: successes and promises", Executive Master, Ecole Polytechnique, Palaiseau, Nov 2019

10.3.3. Interventions

- Philippe Preux:

    –   panel on "Promises and perils of AI", CGIAR, Hyderabad, India, Oct 2019

    –   panel on "AI and man", Euratechnologies, Lille, Sep 2019

- Yannis Flet-Berliac and Philippe Preux: panel on "Who's the pilot: man of software?", FOOR, Le Fresnoy, Tourcoing, Nov 2019

- Yannis Flet-Berliac: "Princess of parallelograms" installation (with Thomas Depas), Le Fresnoy, Tourcoing, "Damien & The Love Guru" gallery in Brussels, Belgium, Sep–Dec 2019

Figure 1.

Princess of parallelograms is a collaborative project between Yannis Flet-Berliac and a student from Le Fresnoy National Studio of Contemporary Arts. They created an interactive sculpture made of a variety of computer vision attributes: a support for anthropomorphic projections, a set of generated virtual masks, or a new form of photographic trap. When visitors stand in front of the device's webcam, a Deep Convolutional Conditional-GAN Auto-Encoder model applies a filter on their face with virtual flesh, hair, and facial expressions in real-time. In the meantime, an emotion detection model trained on the FER-2013 dataset is running in the background. The system allows the users to actively interact with the installation. So far, the project has been exposed at Le Fresnoy and in Brussels.

SIERRA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

- Adrien Taylor, ICCOPT session organizer: *Performance Estimation of First-Order Methods* (with F. Glineur), *Splitting Methods and Applications (Part I)* (with P. Giselsson and E. Ryu), *Splitting Methods and Applications (Part III)* (with P. Giselsson and E. Ryu).

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- Alexandre d'Aspremont, co-organizer, Les Houches Workshop on Optimization and Machine Learning, March 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Senior Area Chair, NeurIPS conference 2019 (Francis Bach).

10.1.2.2. Reviewer

Most of the team referees for the major machine learning conferences such as NIPS, AISTATS, ICML.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Alexandre d'Aspremont: SIAM Journal on Optimization, Associate Editor
- Alexandre d'Aspremont: SIAM Journal on the Mathematics of Data Science, Associate Editor
- Alexandre d'Aspremont: Mathematical Programming B, Associate Editor
- Alexandre d'Aspremont: Mathematics of Operations Research, Associate Editor
- Francis Bach: Journal of Machine Learning Research, co-editor-in-chief
- Francis Bach: Information and Inference, Associate Editor
- Francis Bach: Electronic Journal of Statistics, Associate Editor.
- Francis Bach: Mathematical Programming, Associate Editor
- Francis Bach: Foundations of Computational Mathematics, Associate Editor

10.1.3.2. Reviewer - Reviewing Activities

1. Adrien Taylor, reviewer for Automatica.
2. Adrien Taylor, reviewer for SIAM Journal on Numerical Analysis (SINUM).
3. Adrien Taylor, reviewer for SIAM Journal on Optimization (SIOPT).
4. Adrien Taylor, reviewer for Mathematical Programming (MPA).
5. Adrien Taylor, reviewer for International Conference on Machine Learning 2019 (ICML19).

10.1.4. Invited Talks

- Alexandre d'Aspremont, ICCOPT 2019, Berlin, August 2019.
- Alexandre d'Aspremont, CIMI Workshop, Toulouse, October 2019.
- Alexandre d'Aspremont, France-Germany-Swiss Optimization conference, Nice, September 2019.
- Alexandre d'Aspremont, BIRS Workshop, Oaxaca, Oct. 2019.
- Alexandre d'Aspremont, SAMPTA, Bordeaux, July 2019.

- Francis Bach,Optimization workshop, Les Houches, March 2019.
- Francis Bach, Oberwolfach, Germany, May 2019.
- Francis Bach, AI Global summit, Geneva, Switzerland, May 2019.
- Francis Bach, ETH Data science seminar, Zurich, Switzerland, June 2019.
- Francis Bach, ETH Imaging workshop, Zurich, Switzerland, June 2019.
- Francis BACH, ICIAM invited session, Valencia, Spain, July 2019.
- Francis Bach, Workshop on covariance operators, Germany, Berlin, September 2019.
- Francis Bach, GAMM Workshop COMinDS2019, Berlin, Germany, October 2019.
- Francis Bach, DIMS workshop, Leipzig, Germany, November 2019.
- Francis Bach, Conference on Decision and Control, Nice, December 2019.
- Adrien Taylor, SPOT optimization seminar, Toulouse, February 2019.
- Adrien Taylor, Optimization workshop, Les Houches, March 2019.
- Adrien Taylor, CWI Network & Optimization Seminar, Amsterdam, April 2019.
- Adrien Taylor, Summer school on Optimization (MIPT & HSE), Moscow, June 2019.
- Adrien Taylor, ICCOPT 2019, Berlin, August 2019.
- Alessandro Rudi, *Recent developments on kernel methods*, RKM 2019 (Sept. 2019, London, UK)
- Alessandro Rudi, *Data, Learning and Inference meeting*, DALI 2019 (Sept. 2019, San Sebastian, Spain)
- Alessandro Rudi,*32nd European Meeting of Statisticians*, EMS 2019 (July 2019 , Palermo, Italy)
- Alessandro Rudi,*Applied Inverse Problems Conference*, AIP 2019 (July 2019, Grenoble, France)
- Alessandro Rudi, *Imaging and Machine Learning Conference* (April 2019, Paris, France)
- Alessandro Rudi, *Seminar on the Mathematics of Imaging* (March 2019, Paris, France)

10.1.5. Scientific Expertise

- Alexandre d'Aspremont. Conseil scientifique, Vivienne Investissement.

10.1.6. Research Administration

- Alexandre d'Aspremont. Reponsable scientifique, IRIS PSL, "Sciences des données, données de la science".
- Francis Bach, Deputy Scientific Delegate for Inria Paris research center, member of the Inria Evaluation Committee.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Alexandre d'Aspremont, Optimisation Combinatoire et Convexe, avec Zhentao Li, (2015-Present) cours magistraux 30h, Master M1, ENS Paris.

Master: Alexandre d'Aspremont, Optimisation convexe: modélisation, algorithmes et applications cours magistraux 21h (2011-Present), Master M2 MVA, ENS PS.

Summer school: Francis Bach, optimization for machine learning, 12 heures, AIMS Master, Kigali, Rwanda

Summer school: Francis Bach, optimization for machine learning, 4 heures, D3S summer school, Ecole Polytechnique.

Master : Francis Bach, Optimisation et apprentissage statistique, 20h, Master M2 (Mathématiques de l'aléatoire), Université Paris-Sud, France.

Master: Pierre Gaillard, Alessandro Rudi, Introduction to Machine Learning, 52h, L3, ENS, Paris.

10.2.2. Supervision

PhD in progress : Thomas Kerdreux, New Complexity Bounds for Frank Wolfe, 2017, Alexandre d'Aspremont

PhD in progress : Radu - Dragomir Alexandru, Bregman Gradient Methods, 2018, Alexandre d'Aspremont

PhD in progress : Mathieu Barré, Accelerated Polyak Methods, 2018, Alexandre d'Aspremont

PhD in progress : Grégoire Mialon, Sample Selection Methods, 2018, Alexandre d'Aspremont

PhD in progress : Raphaël Berthier, started September 2017, supervised by Francis Bach and Pierre Gaillard.

PhD in progress: Loucas Pillaud-Vivien, supervised by Francis Bach and Alessandro Rudi.

PhD in progress: Alexandre Défossez, supervised by Francis Bach and Léon Bottou (Facebook AI Research).

PhD in progress: Alex Nowak-Vila, supervised by Francis Bach and Alessandro Rudi.

PhD in progress: Ulysse Marteau Ferey, supervised by Francis Bach and Alessandro Rudi.

PhD in progress: Vivien Cabannes, supervised by Francis Bach and Alessandro Rudi.

PhD in progress: Eloise Berthier, supervised by Francis Bach.

PhD in progress: Theo Ryffel, supervised by Francis Bach and David Pointcheval.

PhD in progress: Margaux Brégère, supervised by Pierre Gaillard and Gilles Stoltz (Université Paris-Sud).

PhD in progress: Rémi Jezequel, supervised by Pierre Gaillard and Alessandro Rudi.

PhD defended: Dmitry Babichev, co-advised by Francis Bach and Anatoly Judistky, defended February 22 2019

PhD defended: Tatiana Shpakova, advised by Francis Bach, defended February 21 2019

10.2.3. Juries

- HdR Pierre Weiss, IMT Toulouse, September 2019 (Alexandre d'Aspremont).
- HDR Rémi Flamary, Université de Nice, November 2019 (Francis Bach).

10.3. Popularization

- Participation to "Fête de la Science" (with the Apprenti Illustrateur).

<h1 style="text-align:center;color:red;">SIMSMART Project-Team</h1>

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. *Member of the Organizing Committees*

Cédric Herzet is part of the organizing committee of the iTwist'20 Workshop.

8.2. Teaching - Supervision - Juries

8.2.1. *Teaching*

Cédric Herzet has given:

- INSA RENNES, 5ième année de l'option Génie Mathématique, cours de Parcimonie en traitement du signal et des images, 10h de cours magistraux + responsable du module
- Ensai RENNES, Master international « Smart Data » , cours « Foundations of Smart Sensing », 9h de cours magistraux
- Ensai RENNES, Master international « Smart Data » , cours « Advanced topics in Smart Sensing » , 3h de cours magistraux
- Ensai RENNES, Master 1, « Régression pénalisée et sélection de modèles » , cours « Advanced topics in Smart Sensing », 6h de cours magistraux + 6 TPs + responsable du module

François Le Gland has given:

- a 2nd year course on introduction to stochastic differential equations, at INSA (institut national des sciences appliquées) Rennes, within the GM/AROM (risk analysis, optimization and modeling) major in mathematical engineering,
- a 3rd year course on Bayesian filtering and particle approximation, at ENSTA (école nationale supérieure de techniques avancées), Palaiseau, within the statistics and control module,
- a 3rd year course on linear and nonlinear filtering, at ENSAI (école nationale de la statistique et de l'analyse de l'information), Ker Lann, within the statistical engineering track,
- and a course on Kalman filtering and hidden Markov models, at université de Rennes 1, within the SISEA (signal, image, systèmes embarqués, automatique, école doctorale MATISSE) track of the master in electronical engineering and telecommunicationst.

8.2.2. *Supervision*

Cédric Herzet has supervised:

- Soufiane Ait Tilat, PhD, co-supervision with Frédéric Champagnat (Onera, Palaiseau)
- Milan Courcoux-Caro, PhD, co-supervision with Charles Vanwynsberghe (ENSTA Bretagne) and Alexandre Baussard (IUT de Troyes),
- Clément Elvira, postdoc, co-supervision with Rémi Gribonval (Inria Rennes) and Charles Soussen (CentraleSupélec)
- Clément Dorffer, postdoc, co-supervision with Angélique Drémeau (ENSTA Rennes)

Mathias Rousset has supervised:

- Benjamin Dufée, master 2 (with Fredéric Cérou).

François Le Gland has supervised

- Audrey Cuillery, PhD, provisional title: *Bayesian tracking from raw data*, université de Rennes 1, started in April 2016, expected defense in early 2020, funding: CIFRE grant with Naval Group, co–direction: Dann Laneuville (Naval Group, Nantes).

V. Monbet has supervised

- Gabriel Jouan, PhD, Univ Rennes, Scalian, granted by CIFRE.
- Esso-Ridah Bleza, PhD, Univ Bretagne Sud, Janasense, granted by CIFRE.
- Said Obakrim, PhD, Univ Rennes, Ifremer.

8.2.3. *PhD defended*

- Y. Xu (sup.: M. Rousset and P.A. Zitt): Weak over-damped asymptotic and variance reduction
- T.T.T. Chau (sup: V. Monbet): Non-parametric methodologies for reconstruction and estimation in nonlinear state-space models
- M. Morvan (sup: V. Monbet): Modèles de régression pour données fonctionnelles hétérogènes. Application à la modélisation de données de spectrométrie dans le moyen infrarouge

8.2.4. *Juries*

V. Monbet has been a member of the following juries:

- Anders Hildeman - On flexible random field models for spatial statistics: Spatial mixture models and deformed SPDE models, Chalmers University, Sweden.
- Shuaitao Wang - Simulation du métabolisme de la Seine par assimilation de données en continu" , Mines Paris-Tech (reviewer)
- Alban FARCHI - Localisation des méthodes d'assimilation de données d'ensemble, ENPC

François Le Gland has been a member of the following juries:

- (Reviewer) Julien Lesouple (université de Toulouse, adviser : Jean-Yves Tourneret)
- Émilien Flayac (université Paris–Saclay, Orsay, advisers : Frédéric Jean and Karim Dahia)
- Thi Tuyet Trang Chau (université de Rennes 1, advisers : Valérie Monbet and Pierre Ailliot).

8.3. Popularization

8.3.1. *Interventions*

Patrick Héas has made a CS workshop for middle school students based on the ideas of 'Computer Science Unplugged'.

<div align="center">

SPHINX Project-Team

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10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- David Dos Santos Ferreira is the head of the Organization Committee of the next national conference of the SMF (French Mathematical Society) that will take place in Nancy from 25th-29th may 2020 (see: https://smf2020.math.cnrs.fr/).

- David Dos Santos Ferreira is, with Laurent Thomann, co-organizer of the national conference "Journées EDP". (see : http://jedp-2019.iecl.univ-lorraine.fr/).

- Julien Lequeurre and Alexandre Munnier are the heads of the national workshop "Journées EDP de l'Institut Elie Cartan de Lorraine" (see: http://journeesedp.iecl.univ-lorraine.fr/2019/).This an annual conference whose themes are those of the team PDE of the IECL (waves, fluid and fluid-structure interaction, form optimization,...).

10.1.1.2. Member of the Organizing Committees

- Karim Ramdani is a member of the Organizing Committee of the next national conference of the SMF (French Mathematical Society) (see: https://smf2020.math.cnrs.fr/).

- Thomas Chambrion was the organizer of the invited session "Analytic and Geometric Tools in Quantum Control", in the Conference on Decision and Control (CDC 2019, Nice, France).

- Ludovick Gagnon was an organizer of the CRAN/IECL day (November 22, 2019).

- Jean-François Scheid was a member of the organizing committee of the workshop "Journées Corrosion et Analyse Numérique", Laboratoire de Mathématiques d'Orsay, 4 – 5 July 2019.

- David Dos Santos Ferreira was a member of the scientific committee of the "Journées des Jeunes Edpistes Français", Rennes, 20-22 March 2019, https://jjedp19.sciencesconf.org/.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

Xavier Antoine was a member of the scientific council of the international conference Waves 2019, Vienna, Austria, August, 2019.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Xavier Antoine is an associate editor of "Multiscale in Science and Engineering" (Springer) and "International Journal of Computer Mathematics" (Taylor and Francis);

- David Dos Santos Ferreira is a member of the editorial board of "Mathematical Control and Related Fields";

- Jean-Claude Vivalda is a member of the editorial board of the "Journal of Dynamical and Control System".

10.1.3.2. Reviewer - Reviewing Activities

Jean-Claude Vivalda is a reviewer for the "Mathematical reviews".

10.1.4. Invited Talks

- Rémi Buffe was an invited speaker at the "International itinerant workshop in PDEs" (Roma (Italy), February 2019).
- Rémi Buffe was an invited speaker at the "Journées Jeunes Contrôleurs" (Paris, June 2019).
- Rémi Buffe was an invited speaker at the "Conférence THESPEGE - Spectral Theory and Geometry", (Seillac (France), September 2019).
- Thomas Chambrion took part to the invited session "Control of nonlinear PDEs" in Conference on Nonlinear Control Systems (NOLCOS 2019, Vienna (Austria)).
- Ludovick Gagnon was an invited speaker at the first Joint Meeting Brazil-France in Mathematics (Rio de Janeiro, July 2019).
- Jean-François Scheid was invited at the "Journées Corrosion et Analyse Numérique", (Orsay, 4–5 July 2019).
- Jean-François Scheid was invited at the workshop "New Trends in Probability and Analysis" (NTPA), (Hammamet, Tunisia, 23–26 September 2019).
- Takéo Takahashi was an invited speaker at the congress VII MACI 2019, Río Cuarto (Argentina), May 2019.
- Takéo Takahashi was an invited speaker at the workshop PDE 2019, Berlin (Germany), September 2019.
- Takéo Takahashi was an invited speaker at the workshop "Franco-Brazilian meeting in mathematical fluid mechanics", Lyon (France), October 2019.
- Takéo Takahashi was an invited speaker at the workshop "Feedback Control", Linz (Austria), November 2019.

10.1.5. Leadership within the Scientific Community

David Dos Santos Ferreira is one of the coordinators of the GDR "Analyse des EDP".

10.1.6. Research Administration

- Xavier Antoine is the director of the maths laboratory IECL and an elected member of the scientific council of the "Université de Lorraine".
- Xavier Antoine was the president of the HCERES evaluation panel of the laboratory Lamav, (Valenciennes, February 2019). He was also a member of the HCERES evaluation panel of the "Fédération de Recherche des Hauts de France", (February 2019).
- Xavier Antoine is the local coordinator of the France-Chinese CNRS LIASFMA in applied mathematics.
- David Dos Santos Ferreira is the treasurer of the SMF (French Mathematical Society).
- Karim Ramdani is member of the board of the RNBM (Réseau National des Bibliothèques de Mathématiques) and is in charge of Open Access issues (with Benoît Kloeckner). Since October 2018, he is also a member of the Working Group "Publications" of the national "Comité pour la Science Ouverte" of the French ministry of Higher Education, Research and Innovation.
- Ludovick Gagnon is International in charge of international relations for the Inria Nancy Grand-Est.
- Julie Valein was a member of the selection committee of new "maître de conférences" at "Université de Besançon-ISIFC" in April-May 2019.
- Julie Valein is a co-organizer of the "Séminaire EDP de l'Institut Elie Cartan de Lorraine, site de Nancy".
- Julien Lequeurre is the organizer of the "Séminaire EDP de l'Institut Elie Cartan de Lorraine, site de Metz".

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Except L. Gagnon, K. Ramdani, T. Takahashi and J.-C. Vivalda, SPHINX members have teaching obligations at "Université de Lorraine" and are teaching at least 192 hours each year. They teach mathematics at different level (Licence, Master, Engineering school). Many of them have pedagogical responsibilities.

Moreover, Julie Valein is a member of the managing board and of the selection committee of the engineer school "Polytech Nancy", she is also a member of the "personnel commission" of IECL.

10.2.2. Supervision

- PhD in progress
    - I. Badia, HPC simulation by domain decomposition methods of electromagnetic problems, (started in september 2019), X. Antoine and Ch. Geuzaine.
    - I. Djebour, Controlability and stabilization of fluid-structure interaction problems, (started in November 2017), T. Takahashi.
    - D. Gasperini, design of a new multi-frequency PDE-based approach for the numerical simulation of the Doppler effect arising in acoustic and electromagnetism, X. Antoine.
    - Z. Liu, Statistical methods for the automatic generation of efficient command laws without model, April 2018, Th. Chambrion.
    - Ph. Marchner, Numerical simulation by domain decomposition methods of aeroacoustic problems, Sept. 2019, X. Antoine and Ch. Geuzaine.
    - Julie Valein is a member of the monitoring committee of the theses of Imène Djebour (september 2018 and 2019, advisor Takéo Takahashi) and Ibtissem Zaafrani (september 2019, advisor Simon Labrunie)

10.2.3. Juries

- Takéo Takahashi reviewed the PhD thesis of Jiao He, Université de Lyon, 2019.
- Xavier Antoine reviewed the PhD theses of
    - M. Averseng, Université de Saclay, 2019.
    - P. Mennuni, Université de Lille, 2019.
    - P. Marchand, Université de Sorbonne Université, 2020 (defense).
- Xavier Antoine reviewed the HDR of S. Chaillat, ENSTA, 2019.
- Jean-Claude Vivalda was a member of the thesis jury of Missie María del Rocío Aguado Rojas defended at June 2019 at "Centrale-Supélec".
- David Dos Santos Ferreira was the president of the HDR thesis jury of Matthieu Léautaud (University of Paris Diderot).
- David Dos Santos Ferreira was a member of the HDR thesis jury of Thierry Daudé (University of Cergy-Pontoise).
- David Dos Santos Ferreira reviewed the PhD thesis of Cristóbal Meroño Moreno (Universidad Autónoma de Madrid)

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Isabelle Guyon - Competition co-chair, ECMLPKDD 2019

Michele Sebag - Area Chair NIPS 2017-2019, ICLR 2020

Flora Jay - PASADENA workshop co-chair, Paris, 2019

10.1.1.2. Member of Organizing Committees

Guillaume Charpiat - Organizing & scientific committee of the ForMaL summer school, at ENS Cachan, June 2019, and of WAISE (Second International Workshop on Artificial Intelligence Safety Engineering) held at SafeComp in September 2019.

Flora Jay - Organizing & scientific committee of Research Program "Ecosystem dynamics : stakes, data and models" at Institut Pascal, Paris-Saclay, 2019.

Isabelle Guyon - Advisory committee BayLearn 2019; Co-organizer NeurIPS 2019 workshop on Challenges in Machine Learning; Co-organizer NeurIPS 2019 NewInML workshop.

Marc Schoenauer - Steering Committee, Parallel Problem Solving from Nature (PPSN); Steering Committee, Learning and Intelligent OptimizatioN (LION).

Michele Sebag - President of Steering Committee, Eur. Conf. on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD).

10.1.2. Scientific Events: Selection

10.1.2.1. Reviewer

All TAU members are reviewers of the main conferences in their respective fields of expertise.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Isabelle Guyon - Action editor, *Journal of Machine Learning Research* (JMLR); series editor, *Springer series Challenges in Machine Learning* (CiML).

Marc Schoenauer - Advisory Board, *Evolutionary Computation Journal*, MIT Press, and *Genetic Programming and Evolutionary Machines*, Springer Verlag; Action editor, *Journal of Machine Learning Research* (JMLR).

Michèle Sebag - Editorial Board, Machine Learning, Springer Verlag.

Paola Tubaro - Associate Editorial Board *Sociology*, Sage; Co-editor, *Revue Française de Sociologie*, Presses de Sciences Po.

10.1.3.2. Reviewer - Reviewing Activities

All members of the team reviewed numerous articles for the most prestigious journals in their respective fields of expertise.

10.1.4. Invited Talks

Guillaume Charpiat - *Deep Learning for Satellite Imagery* in the Imagine team (ENPC), at Champs-sur-Marne, March 2019; and at LRDE lab (EPITA), at Kremlin-Bicêtre, April 2019; *Deep Learning for Storm Trajectory Prediction and Remote Sensing* at the seminar AI for Climate, at Jussieu (Paris), December 2019.

Cyril Furtlehner - *A machine learning approach to solar wind speed forecasting from solar images*, Machine Learning in Heliophysics conference, Amsterdam September 2019.

Flora Jay - *Machine Learning and Deep Learning for Population Genetics*, Statistics/Machine Learning at Paris-Saclay, Bures-sur-Yvette, Jan 2019; *Inferring Demography? A Deep Learning Approach for Population Genetic Data*, ALPHY 7-8 Feb. 2019; *Génomes présents, histoires d'antan: Apprentissage profond pour la génétique des populations*, Inria Seminar Unithé ou Café with G Charpiat, Feb 2019; *When AI & Big Data meet life sciences - Advances in research and ethical questions*, Round Table at YLRS2019, Paris, Jun 2019; *Inferring past history from genetic data using ABC and Deep Learning approaches*, Seminar at Lille University, Jan 2019; *Creating Artificial Human Genomes Using Generative Models*, Seminars at LCQB and Evolmol IBENS, Paris, Nov and Dec 2019.

Julien Girard - *Formal validation for machine learning*, DataIA day on Safety & AI, Palaiseau, Sept. 11th.

Isabelle Guyon - Invited talk at 2019 Sackler Colloquium of the Science of Deep Learning, and Keynote IJCNN 2019: "Neural network solvers for power transmission problems" (https://youtu.be/YBcRzIAFDYU).

Michèle Sebag - *Meta-Learning*, Kickoff of the Kompetenz Center in Machine Learning, Rhine Ruhr Region, Jan. 2019; *Structural Agnostic Models*, Oberwolfach Symposium on Causality, May 2019; *Artificial Intelligence & Causal Modeling*, CREST Big Data Applications Symposium, Tokyo, Sept. 24, 2019; *Some news and questions about AI and Machine Learning*, Arensberg Symposium, Leuven, Nov. 2019.

Marc Schoenauer - *Intelligence Artificielle Mythes et réalités*, audition par la Fédération Française du Bâtiment, Feb. 13, 2019; *Intelligence Artificielle : du congrès de Dartmouth au rapport Villani*, Séminaire IFPEN, Apr. 4. 2019; *Intelligence Artificielle : de Dartmouth à l'apprentissage profond et au rapport Villani*, Rencontres Franciliennes de Mécanique, May 28, 2019; *A gentle introduction to AI and (Deep) Learning*, Mexican-French Workshop, Aug. 27. 2019, Mexico; *Intelligence artificielle : certification, transparence, et impact sur la société*, Data Science Day, Mines Paris Tech, Sept. 18, 2019; *When Big Data and Machine Learning meet Partial Differential Equations*, CREST Big Data Applications Symposium, Tokyo, Sept. 25, 2019;

Paola Tubaro - *Sélectionné.e par une IA ? Algorithmes, inégalités, et les "humains dans la boucle"*, Centre D'Alembert, Orsay, 18/04/2019; *Dans la fabrique des algorithmes : plateformes, micro-travail et dynamiques d'externalisation*, INSEE, 14/05/2019; *The human labour that makes AI possible: An empirical study of micro-work in France*, Alan Turing Institute, London, 22/01/2019; *Que font les big data aux sciences sociales ? Retour sur une 'crise' annoncée*, EHESS, 21/02/2019.

10.1.5. Leadership within the Scientific Community

Isabelle Guyon - President and co-founder of ChaLearn, a non-for-profit organization dedicated to the organization of challenge.

Marc Schoenauer - Chair of ACM-SIGEVO (Special Interest Group on Evolutionary Computation), 2015-2019, now in Advisory Board; Founding President (since 2015) of SPECIES (Society for the Promotion of Evolutionary Computation In Europe and Surroundings), that organizes the yearly series of conferences *EvoStar*.

Michèle Sebag - Elected Chair of Steering Committee, ECML-PKDD; Board member, Institut de Convergence DataIA.

Paola Tubaro - Convenor of the Social Network Analysis Group of British Sociological Association; co-founder of European Network on Digital Labor.

10.1.6. Scientific Expertise

Guillaume Charpiat - Member of the Inria Saclay Commission Scientifique, and as such, jury committee for grants for PhD theses / postdocs / professor delegations; expertise for DigiCosme grants, ANRT CIFRE PhD grants; for GPU platforms: Jean Zay (GENCI) and Lab-IA (Saclay plateau). Discussion panel of the workshop day IA & Océan-Atmosphère-Climat (IMT Atlantique Rennes), February 6th. Panel of the Machine Learning workshop at CRiP ITES, Deauville, April 5th.

Cécile Germain - Evaluator for the H2020-2016-CNECT program; member of the DFG review panel within Germany's excellence strategy selection process.

Isabelle Guyon - Member of the NeurIPS foundation board.

Marc Schoenauer - Comité Scientifique IA, SCube (Scientipôle Savoirs & Société), Orsay; Scientific Committee, TrackML (see Section 7.6); Comité de sélection, Chaire ABEONA-ENS "Biais et Equité en IA"; Conseil Scientifique, IFPEN; Scientific Advisory Board, BCAM, Bilbao, Spain; Scientific Advisory Board, Tara Oceans, Paris.

Michèle Sebag - Hiring juries : LRI; Centrale-Supélec; ENS-Paris; UCA-Nice; U. Freiburg, Germany. Selection juries: Awards NIPS 2019. Propositions NSERC, Canada; Propositions Dpt STIC; Prix de thèse AFIA. Expert Committee from Finland's Minister of Economic Affairs, AI Strategy, February 2019.

10.1.7. Research Administration

Isabelle Guyon - Representative of UPSud in the DataIA *Institut de Convergence* Program Committee, University of Paris-Saclay. Responsible of Master AIC (becoming Paris-Saclay master in Artificial Intelligence).

Marc Schoenauer - Deputy Scientific Director of Inria (in French, Directeur Scientifique Adjoint, DSA), in charge of AI.

Michele Sebag - Deputy director of LRI, CNRS UMR 8623; elected member of the Research Council of Univ. Paris-Saclay; member of the STIC department council of Univ. Paris-Saclay; member of the Scientific Council of Labex AMIES, Applications des Mathématiques ds l'Industrie, l'Entreprise et la Société.

Paola Tubaro - Representative of CNRS in the DataIA *Institut de Convergence* Program Committee, University of Paris-Saclay; member of the Board, Maison des Sciences de l'Homme Paris-Saclay; member of CLIP, Institut Pascal, University of Paris-Saclay.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : Philippe Caillou, Computer Science for students in Accounting and Management, 192h, L1, IUT Sceaux, Univ. Paris Sud.

Licence : Aurélien Decelle, Computer Architecture, 42h, L2, Univ. Paris-Sud.

Licence : Aurélien Decelle, Introduction to Machine Learning, 57h, L2, Univ. Paris-Sud.

Licence : François Landes, Mathematics for Computer Scientists, 51h, L2, Univ. Paris-Sud.

Licence : François Landes, Intro to Machine Learning, 48h, L2, Univ. Paris-Sud.

Licence and Polytech : Cécile Germain, Computer Architecture

Licence : Isabelle Guyon: Introduction to Data Science, L1, Univ. Paris-Sud.

Licence : Isabelle Guyon, Project: Resolution of mini-challenges (created by M2 students), L2, Univ. Paris-Sud.

Master : François Landes, Machine Learning, 34h, M1 Polytech, U. Paris-sud.

Master : Aurélien Decelle, Machine Learning, 26h, M1, Univ. Paris-Sud.

Master : Aurélien Decelle, Probability and statistics, 26h, M1, Univ. Paris-Sud.

Master : Aurélien Decelle, Probability, statistics and information theory, M1, Univ. Paris-Sud.

Master : Guillaume Charpiat, Deep Learning in Practice, 24h, M2 Recherche, Centrale-Supelec + MVA.

Master : Isabelle Guyon, Project: Creation of mini-challenges, M2, Univ. Paris-Sud.

Master : Michèle Sebag, Machine Learning, 12h; Deep Learning, 9h; Reinforcement Learning, 12h; M2 Recherche, U. Paris-Sud.

Master : François Landes, Machine Learning, 22h, M2 Recherche, U. Paris-Sud.

Master : Paola Tubaro, Start -up project for engineering students, 24h, Telecom ParisTech.

Master : Paola Tubaro, Sociology of social networks, 24h, M2, EHESS/ENS.

Master : Paola Tubaro, Social and economic network science, 24h, M2, ENSAE.

Doctorate: Paola Tubaro, Research Methods, 12h, University of Insubria, Italy.

Summer school: Guillaume Charpiat, Machine Learning & Deep Learning Tutorial, 4h30, ForMaL, ENS Cachan, June 4th

10.2.2. Supervision

HdR - Paola Tubaro, *Decoding the platform society: Organizations, markets and networks in the digital economy*, 11/12/2019, Sciences Po Paris.

PhD - Benjamin DONNOT, *Deep learning methods for predicting flows in power grids : novel architectures and algorithms.*, 13/02/2019, Isabelle Guyon and Antoine Marot (RTE)

PhD - Corentin TALLEC, *Reinforcement Learning and Recurrent Neural Networks: Dynamical approaches*, 7/10/2019, Université Paris-Saclay, Yann Ollivier

PhD - Mandar CHANDORKAR, *Machine Learning in Space Weather*, 14/11/2019, University of Eindhoven, Enrico Camporeale, Cyril Furtlehner, and Michèle Sebag

PhD - Guillaume DOQUET, *Agnostic Feature Selection*, 29/11/2019, Université Paris-Saclay, Michèle Sebag

PhD - Diviyan KALAINATHAN, *Generative Neural Networks to Infer Causal Mechanisms: Algorithms and Applications*, 17/12/2019, Université Paris-Saclay, Michèle Sebag and Isabelle Guyon

PhD - Lisheng SUN, *Meta-Learning as a Markov Decision Process*, 19/12/2019, Université Paris-Saclay, Isabelle Guyon and Michèle Sebag

PhD in progress - Eléonore BARTENLIAN, *Deep Learning pour le traitement du signal*, 1/10/2018, Michèle Sebag and Frédéric Pascal (Centrale-Supélec)

PhD in progress - Victor BERGER, *Variational Anytime Simulator*, 1/10/2017, Michèle Sebag

PhD in progress - Guillaume BIED, *Valorisation des Données pour la Recherche d'Emploi*, 1/10/2019, Bruno Crepon (CREST-ENSAE) and Philippe Caillou

PhD in progress - Leonard BLIER, *Vers une architecture stable pour les systèmes d'apprentissage par renforcement*, 1/09/2018, Yann Ollivier (Facebook AI Research, Paris) and Marc Schoenauer

PhD in progress - Tony BONNAIRE, *Reconstruction de la toile cosmique*, from 1/10/2018, Nabila Aghanim (Institut d'Astrophysique Spatiale) and Aurélien Decelle

PhD in progress - Balthazar DONON, *Apprentissage par renforcement pour une conduite stratégique du système électrique*, 1/10/2018, Isabelle Guyon and Antoine Marot (RTE)

PhD in progress - Victor ESTRADE *Robust domain-adversarial learning, with applications to High Energy Physics,* 01/10/2016, Cécile Germain and Isabelle Guyon.

PhD in progress - Loris FELARDOS, *Neural networks for molecular dynamics simulations*, 1/10/2018, Guillaume Charpiat, Jérôme Hénin (IBPC) and Bruno Raffin (InriAlpes)

PhD in progress - Giancarlo FISSORE, *Statistical physics analysis of generative models*, 1/10/2017, Aurélien Decelle and Cyril Furtlehner

PhD in progress - Julien GIRARD, *Vérification et validation des techniques d'apprentissage automatique*, 1/10/2018, Zakarian Chihani (CEA) and Guillaume Charpiat

PhD in progress - Nicolas GIRARD, *Satellite image vectorization using neural networks*, 1/10/2017, Yuliya Tarabalka & Pierre Alliez (Inria Sophia-Antipolis) and Guillaume Charpiat

PhD in progress - Armand LACOMBE, *Recommandation de Formations: Application de l'apprentissage causal dans le domaine des ressources humaines*, 1/10/2019, Michele Sebag and Philippe Caillou

PhD in progress - Zhengying LIU, *Automation du design des reseaux de neurones profonds*, 1/10/2017, Isabelle Guyon

PhD in progress - Nizam MAKDOUD, *Motivations intrinsèques en apprentissage par renforcement. Application à la recherche de failles de sécurité*, 1/02/2018, Marc Schoenauer and Jérôme Kodjabachian (Thalès ThereSIS, Palaiseau).

PhD in progress - Marc NABHAN, *Sûreté de fonctionnement d'un véhicule autonome - évaluation des fausses détections au travers d'un profil de mission réduit*, 1/10/2017, Marc Schoenauer and Hiba Hage (Renault)

PhD in progress - Adrian POL *Machine Learning Anomaly Detection, with application to CMS Data Quality Monitoring,* 01/10/2016, Cécile Germain.

PhD in progress - Herilalaina RAKOTOARISON, *Automatic Algorithm Configuration for Power Grid Optimization*, 1/10/2017, Marc Schoenauer and Michèle Sebag

PhD in progress - Théophile SANCHEZ, *Reconstructing the past: deep learning for population genetics*, 1/10/2017, Guillaume Charpiat and Flora Jay

PhD in progress - Pierre WOLINSKI, *Learning the Architecture of Neural Networks*, from 1/9/2016, Yann Ollivier (Facebook AI Research, Paris) and Guillaume Charpiat

PhD in progress - Wenzhuo LIU, Machine Learning for Numerical Simulation of PDEs, from 1/11/2019, Mouadh Yagoubi (IRT SystemX) and Marc Schoenauer

PhD in progress - Marion ULLMO, *Reconstruction de la toile cosmique*, from 1/10/2018, Nabila Aghanim (Institut d'Astrophysique Spatiale) and Aurélien Decelle

10.2.3. Juries

Marc Schoenauer: Reviewer for Dennis Wilson, IRIT, Université Toulouse; PhD jury of Patricio Cerda Reyes, U. Paris-Saclay, 28/11/2019.

François Landes: PhD rapporteur of Martina Teruzzi (Condensed matter and Machine Learning PhD, at SISSA, Trieste, Italy).

Paola Tubaro: PhD jury of Sophie Balech, U. Paris Nanterre, 09/07/2019; PhD jury of Linda Rua, U. Paris Dauphine, 13/12/2019.

Guillaume Charpiat: half-way PhD committee ("à mi-parcours") of Rodrigo Daudt (ONERA), of Julie Rivet (EPITA) and of Nissim Zerbib (Institut de la Vision)

Isabelle Guyon: PhD jury Justine Falque, U. Paris-Saclay (29/11/2019).

Michele Sebag: Reviewer for A. Chemla (PhD U. Roma & IRCAM); Pierre Fournier (PhD ISIR).

10.3. Popularization

10.3.1. Articles and contents

- Michèle Sebag - *Il faut dissiper le malentendu sur "les prétentions infondées" de l'intelligence artificielle*, tribune du journal *Le Monde* du 12 août 2019.

- Paola Tubaro - BBC World service, *The 'microworkers' making your digital life possible*, 02/08/2019; Radio France Inter, *Travailleurs du clic, les soutiers du clavier*, 23/03/2019; Science & Vie, *La force de l'IA repose sur des travailleurs bien r'eels*, 24/10/2019; AFP/L'Express, *Les travailleurs du clic, petites mains invisibles de l'économie numérique*, 21/06/2019; CNRS Le Journal, *Ces microtravailleurs de l'ombre*, 24/05/2019; Le Monde, *Jobs du clic : la France compte plus de 250 000 micro-travailleurs*, 15/02/2019; L'Humanité Dimanche, *Travailleuse du clic, la double invisibilité*, 02/05/2019.

10.3.2. Interventions

- Guillaume Charpiat - *Génomes présents, histoires d'antan: Apprentissage profond pour la génétique des populations*, Inria Seminar Unithé ou Café with Flora Jay, Feb 2019.

- Marc Schoenauer - *Intelligence Artificielle Mythes et réalités*, Classe virtuelle de la Délégation Académique du Numérique Educatif, Feb. 2, 2019; *Intelligence Artificielle Mythes et réalités*, Médiathèque George Sand, Palaiseau, Feb. 9, 2019.

- Michèle Sebag - Journées Scientifiques Inria, Lyon 2019; Centre de Recherches Interdisciplinaires, Workshop on Artificial Intelligence and Women Empowerment (Oct. 2019); CRI, *Open AI: From big data to smart data* (Nov. 2019).

- Paola Tubaro - *Le Micro-Travail en France : derrière l'automatisation, de nouvelles précarités au travail ?* CFE-CGC Orange, Paris, 01/07/2019; *Le Micro-Travail en France*, Fondation Gabriel Péri, Paris, 26/06/2019; *Big data et société : vie privée, travail, inégalités*, Banque de France, 06/06/2019.

TOSCA Team

9. Dissemination

9.1. Promotion of Mathematics in the industry

- A. Lejay is member of the board of AMIES (Agence Mathématiques en Intéractions avec l'Entreprise et la Société). A. Lejay is editor of the *success stories* project.
- D. Talay continued to serve as a member of the Scientific Committee of the AMIES National Agency aimed to promote interactions between Mathematics and Industry.
- D. Talay continued to serve as the Vice-President of the Fondation d'Entreprise Natixis which aims to contribute to develop research in quantitative finance. He also serves as a member of the Scientific Committee of the Foundation.

9.2. Promoting Scientific Activities

9.2.1. Scientific Events: Organisation

- C. Fritsch organizes with Pascal Moyal (Univ. de Lorraine) the weekly Seminar of Probability and Statistics of IECL, Nancy.
- C. Fritsch organized with Constantin Morarescu (CRAN) a scientific day of the *Fédération Charles Hermite* about multiscale models. (IECL, Nancy, 21 June 2019)

9.2.1.1. Member of the Organizing Committees

- N. Champagnat is member of the organizing committee of the conference *Mathematical Models in Evolutionary Biology*, part of the Thematic Month on Mathematical Issues in Biology (CIRM, Luminy, 10–14 Feb. 2020).
- N. Champagnat was member of the organizing committee of the conference ReaDiNet 2019 *Mathematical Analysis for Biology and Ecology* (Inria Nancy – Grand Est, 23–25 Sep.).
- N. Champagnat and U. Herbach organized the workshop *Modélisation de l'hétérogénéité tumorale et thérapies ciblées* (IECL, Univ. Lorraine, 21–22 Oct.).
- C. Fritsch was member of the organizing committee of the conference *51es Journées de Statistiques* (Nancy, 3–7 June).
- A. Lejay organized the conference *TRAG 2019* (Nancy, 9–11 Oct.).
- E. Tanré and R. Veltz organized the workshop on *Mean-field approaches to the dynamics of neuronal networks* (EITN, 3–4 April).

9.2.1.2. Member of the Conference Program Committees

- M. Bossy is member of the SMAI2019 Conference Scientific Committee and MASCOT NUM 2020 Conference.
- D. Talay is serving as a member of the scientific commitee for MasterKesm (Masterclass from kinetic equations to statistical mechanics) summer school to be held in Saint Jean de Monts in 2020.

9.2.2. Journal

9.2.2.1. Member of the Editorial Boards

- A. Lejay is one of the three editors of the *Séminaire de Probabilités* and *Mathematics and Computers in Simulation* (MATCOM).
- N. Champagnat serves as an associate editor of *Stochastic Models*.

- N. Champagnat serves as co-editor-in-chief with Béatrice Laurent-Bonneau (IMT Toulouse) of *ESAIM: Probability & Statistics*.

- D. Talay serves as an Area Editor of *Stochastic Processes and their Applications*, and as an Associate Editor of *Journal of the European Mathematical Society*, *Probability, Uncertainty and Quantitative Risk*, *ESAIM Probability and Statistics*, *Stochastics and Dynamics*, *Journal of Scientific Computing*, *Monte Carlo Methods and Applications*, *SIAM Journal on Scientific Computing*, *Communications in Applied Mathematics and Computational Science*, *Éditions de l'École Polytechnique*. He also served as Co-editor in chief of *MathematicS in Action*.

9.2.2.2. Reviewer - Reviewing Activities

- N. Champagnat wrote reviews for *Stochastic Processes and their Applications* (three times this year), *Electronic Journal of Probability* and *Frontiers of Mathematics in China*.

- C. Fritsch wrote reviews for *PCI Ecology*.

- C. Henry wrote reviews for *Annals of Nuclear Energy*, *Aerosol Science and Technology*, *Building and Environment* and *Journal of Aerosol Science*.

- A. Lejay wrote reviews for *Annals of Institut Henri Poincaré*, *Statistical Inference for Stochastic Processes*, *Journal of Computational and Applied Mathematics*, *Physical Review E*, *Bernoulli*, *Electronic Journal of Probability*, *ESAIM PS*, *Journal Theoretical Probability*, *SIAM Journal on Control and Optimization*, *Applied Probability Journals*, *Journal of Functional Analysis*.

- E. Strickler wrote reviews for *Stochastic Models* and *Stochastic Processes and their Applications*.

- E. Tanré wrote reviews for *The Annals of Applied Probability*, *Electronic Journal of Probability*, *ESAIM PS*, *The Bulletin of the London Mathematical Society*, *Finance and Stochastics*, *The Journal of Mathematical Neuroscience*, *Stochastic Processes and their Applications*.

- E. Tanré serves has a permanent reviewer of *Mathematical Reviews of the American Mathematical Society (MathSciNet)*.

- D. Villemonais wrote reviews for *Markov processes and related fields*, *Electronic communication in Probabilty* (twice), *The Annals of Applied Probability*, *Stochastic processes and Applications*, *Journal of Statistical Physics* and *Electronic Journal of Probability*.

- D. Talay reported on applications to the Swiss National Science Foundation (SNSF).

- D. Talay reported on applications to the Research Grants Council (RGC) of Hong Kong.

9.2.3. Invited Talks

- M. Bossy has been invited to give talks at the conference Simulation and Optimization for Renewable Marine Energies, at Roscoff in July.

- N. Champagnat has been invited to give a Colloquium talk at the Department of Mathematics and Computer Science of the University of Technology in Eindhoven in February.

- N. Champagnat gave a talk at the Journée Charles Hermite *Modélisation fine versus outils d'analyse et simulation, un problème d'échelle* in Nancy in June.

- Q. Cormier has been invited to give a talk at the workshop on *Mean-field approaches to the dynamics of neuronal networks* at EITN in April.

- Q. Cormier and P. Helson have presented posters at the *International Conference on Mathematical Neuroscience* in Copenhagen in June.

- Q. Cormier and E. Tanré have been invited to give talks at the workshop "Nonlinear Processes and their Applications" in St. Etienne in July.

- C. Fritsch has been invited to give a talk at the workshop of the *MAMOVI* group in September.

- C. Fritsch gave a talk at the *Journées de Statistiques* in Nancy in June and at the *Mathematical Models in Ecology and Evolution* conference in Lyon in July.

- V. Hass presented a poster at the conference ReaDiNet 2019 *Mathematical Analysis for Biology and Ecology* in Nancy in September.
- U. Herbach has been invited to give talks at the Journée Charles Hermite *Méthodes et Modèles pour comprendre les réseaux biologiques* in January, at the spring school of *chaire MMB (Modélisation Mathématique et Biodiversité)* in Aussois in May, at the *Journée du RIS (Réseau Interdisciplinaire autour de la Statistique)* in Paris in September and at the workshop *Modélisation de l'hétérogénéité tumorale et thérapies ciblées* in Nancy in October.
- U. Herbach gave seminar talks at the *Séminaire de probabilités et statistiques de l'IECL* in Nancy in April, at the *Groupe de travail Maths-Bio* in Orléans in May, at the *Séminaire CIML (Centre d'immunologie de Marseille-Luminy)* in Marseille in May, at the *Groupe de travail du LBMC (Laboratoire de Biologie et Modélisation de la Cellule)* in Lyon in November, at the *Séminaire de probabilités* in Grenoble in November and at the *Groupe de travail Maths-Bio* in Grenoble in November.
- U. Herbach presented a poster at the conference *Probabilistic Modeling in Genomics* in Aussois in October.
- A. Lejay have been invited to give a mini-talk *A short introduction to Rough Paths* at Ritsumeikan University (Kyoto, Japan) in February.
- A. Lejay gave a talk at the conference *TRAG 2019* (Nancy) in October.
- E. Strickler gave seminar talks at the *Séminaire de probabilités* in Toulouse in October and at the *Séminaire de probabilités et statistiques de l'IECL* in Nancy in November.
- D. Villemonais gave seminar talks at the *Séminaire de Probabilités* of Univ. Paris 13 in April and at the *Probability Seminar* of Zurich Univ. in March.
- D. Villemonais has bee invited to give talks at the *Journées du réseau A2* (Paris-Sorbonne Univ.) in October and at the *Conference ReaDiNet 2019* (Inria Nancy – Grand Est) in September.
- E. Soret has given an invited talk at ICMNS in Copenhagen in June.
- D. Talay was an invited speaker at the Conference in Honor of Philip Protter, Columbia University, New York, USA, September 2019.
- D. Talay was an invited speaker at the Conference in Honor of Nicole El Karoui, Sorbonne University, Paris, 21-24 May 2019.
- D. Talay was an invited speaker at the 'Stochastic Analysis and Related Topics' International Conference, Bucarest, Romania, 6-9 May 2019.
- D. Talay chaired a session at the 'Journées de l'Académie des Sciences en région', Nice and Sophia Antipolis, 2-21 June 2019.
- D. Talay gave a seminar talk at École des Ponts ParisTech on 27 November 2019.

9.2.4. Leadership within the Scientific Community

- M. Bossy was serving as a vice president of the Inria Evaluation Committee until September 2019.
- A. Lejay is head of the Probability and Statistics team of Institut Élie Cartan de Lorraine.
- D. Talay continued to chair the Scientific Council of the French Applied Math. Society SMAI.
- D. Talay is a member of the scientific committee of the 'Institut Mathématiques de la Planète Terre' project supported by INSMI-CNRS.
- D. Talay served as a member of the scientific council of the Complex System academy of the Université Côte d'Azur Idex.
- D. Talay is serving as a member of the CMUP Advisory Commission (University of Porto).
- D. Talay is a member of the Comité National Français de Mathématiciens.

9.2.5. Scientific Expertise

- N. Champagnat evaluated a research project submitted to the ANR.
- C. Fritsch is member of the Ph.D. monitoring committee of Léo Darrigade (INRA).
- D. Talay served as a member of the committee for positions in Applied Mathematics at the Ecole Polytechnique.
- D. Talay chaired the HCERES evaluation committee for the Toulouse Mathematics Institute (IMT).
- D. Talay is serving as a member of the evaluation committee of the Charles University (Prague, Czech Republic).

9.2.6. Research Administration

- N. Champagnat is a member of the *Comité de Centre*, the *COMIPERS* and the *Commission Information Scientifique et Technique* of Inria Nancy - Grand Est, *Responsable Scientifique* for the library of Mathematics of the IECL, member of the *Conseil du laboratoire* of IECL (as *responsable scientifique* of the library). He is also local correspondent of the COERLE (*Comité Opérationel d'Évaluation des Risques Légaux et Éthiques*) for the Inria Research Center of Nancy - Grand Est.
- C. Fritsch is member of the *Commission du Développement Technologique* of Inria Nancy - Grand Est, of the *Commission du personnel* and the *Commission Parité-Égalité* of IECL. She is the local Raweb correspondent for the Inria Research Center of Nancy - Grand Est.
- A. Lejay is member of the Executive board of *LUE Impact project digistrust* (Univ. Lorraine), of the Conseil de Pôle AM2I (Univ. Lorraine) and of the CUMI (Inria NGE).
- D. Villemonais is responsible of the "Ingénierie Mathématique" cursus of École des Mines de Nancy and is elected member of the conseil de l'École des Mines de Nancy.

9.3. Teaching - Supervision - Juries

9.3.1. Teaching

Master: N. Champagnat, *Introduction to Quantitative Finance*, 18h, M1, École des Mines de Nancy, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 13.5h, M2, École des Mines de Nancy, France.

Master: N. Champagnat, *Problèmes inverses*, 22.5h, M1, École des Mines de Nancy, France.

Master: C. Fritsch, *Probability theory*, 40h, L3, École des Mines de Nancy, France.

Master: A. Lejay, *Probabilités*, 9h, 1st year Mines de Nancy, France.

Master: A. Lejay, *Simulation des marchés financiers*, 29h, M2, Master PSA, Université de Lorraine, France.

Master: E. Tanré (courses and exercices), *Advanced Numerics for Computational Finance*, 30h (20h + 10h), M2, Univ. Côte d'Azur (Mathmods Erasmus Mundus), France.

Master: E. Tanré, *Mathematical Methods for Neurosciences*, 20h, M2, ENS - Master MVA / Paris 6 - Master Maths-Bio, France.

Master: E. Tanré (courses) *Stochastic models in neurocognition*, 15h (7h30 + 7h30), M2, Univ. Côte d'Azur (Master 2), France.

Master: D. Talay *Invariant measures of diffusion processes*, 18h, M2 Probabilité et Applications, Université Paris 6, France.

9.3.2. Supervision

HdR: Denis Villemonais, *Convergence exponentielle vers une distribution quasi-stationnaire et applications*, Université de Lorraine, 28/11/2019.

PhD in progress: Alexis Anagnostakis, *Étude du mouvement brownien collant*, Université de Lorraine, Octobre 2018, A. Lejay and D. Villemonais.

PhD in progress: Lorenzo Campana, *Stochastic modeling of non-spherical particles transport and deposition by turbulent flow*, Université Côte d'Azur, December 2017, M. Bossy.

PhD in progress: Quentin Cormier, *Biological Networks of Spiking Neurons*, September 2017, E. Tanré and R. Veltz (MATHNEURO Inria team).

PhD in progress: Vincent Hass, *Individual-based models in adaptive dynamics and long time evolution under assumptions of rare advantageous mutations*, Université de Lorraine, October 2018, N. Champagnat.

PhD in progress: Pascal Helson, *Plasticity in networks of spiking neurons in interaction*, October 2016, E. Tanré and R. Veltz (MATHNEURO Inria team).

PhD in progress: Rodolphe Loubaton, *Caractérisation des cibles thérapeutiques dans un programme génique tumoral*, Université de Lorraine, October 2018, N. Champagnat and L. Vallat (CHRU Strasbourg).

9.3.3. Juries

- M. Bossy served as a referee for the Ph.D. thesis of Pierre Antoine Joulin, *Modélisation à fine échelle des interactions entre parcs éoliens et météorologie locale* at Institut National Polytechnique de Toulouse, December 2019.
- M. Bossy served as an examiner for the Ph.D. theses of Victor Marx, *Diffusive processes on the Wasserstein space: Coalescing models, Regularization properties and McKean-Vlasov equations*, Université Côte d'Azur, November 2019, and Sebastian Reyes Riffo, *Méthodes mathématiques pour l'extraction d'énergie marine*, PSL University November 2019.
- N. Champagnat will serve as an examiner for the habilitation thesis of Nicolas Gast, *Refinements of Mean Field Approximation*, Univ. de Grenoble, 30/01/2020.
- N. Champagnat served as a referee for the Ph.D. thesis of Paulien Jeunesse, *Estimation non paramétrique du taux de mort dans un modèle de population générale : théorie et applications*, Univ. Paris Dauphine, 08/01/2019.
- N. Champagnat served as an examiner for the Ph.D. theses of Frédérique Robin, *Modeling and analysis of cell population dynamics: application to the early development of ovarian follicles*, Univ. Paris Saclay, 26/09/2019, William Oçafrain, *Quasi-stationarité avec frontières mobiles*, Univ. Toulouse 3, 4/07/2019, Martin Andrade-resptrepo, *Mathematical modeling and evolutionary processes*, Univ. Paris 7, 26/06/2019 and Edouard Strickler, *Persistance de processus de Markov déterministes par morceaux*, Univ. Neuchâtel, 21/03/2019.
- A. Lejay served as an examiner for the habilitation thesis of Nicolas Marie, *Quelques contributions à la contrainte et à la statistique des équations différentielles dirigées par le mouvement brownien fractionnaire ainsi qu'à la sélection de modèle*, Université Paris Nanterre, November 2019.
- A. Lejay served as an examiner for the Ph.D. thesis of Carlo Bellingeri, *Itô formulae on stochastic heat equation via regularity structures and rough paths*, Sorbonne Université, July 2019.
- D. Talay served as a referee for the Ph.D. thesis of Grégoire Ferré, *Large Deviations Theory in Statistical Physics: Some Theoretical and Numerical Aspects*, Université Paris Est and École des Ponts ParisTech, 27 November 2019.
- D. Talay served as a referee for the habilitation thesis of Adrien Richou, *Quelques Résultats sur les Equations Différentielles Rétrogrades et les Principes de Grandes Déviations pour les Estimateurs de Paramètres de Diffusions*, université de Bordeaux, 4 November 2019.

9.4. Popularization

9.4.1. Interventions

C. Henry gave a presentation at the Inria Café In on the topic of breakup of elongated particles such as spaghettis.

9.4.2. Creation of media or tools for science outreach

- A. Lejay is editor of the project *Success Stories* (AMIES and FSMP) dedicated to create 2-page sheets to present successful interactions between industry and academia.

TRIPOP Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Member of the Conference Program Committees

1. Vincent Acary is co-organisor (with O. Bruls and R. Leine) of the mini-symposium Nonsmooth Dynamics, 10th Nonlinear Dynamics Conference (ENOC 2020), Lyon, July 2020.

2. Vincent Acary was co-organisor (with O. Bruls and R. Leine) of the Eighth Symposium of the European Network for Nonsmooth Dynamics at Inria Grenoble Rhone–Alpes. 17–18 September 2019 http://ennsd.gforge.inria.fr/eighthsymposium.html

3. Bernard Brogliato is member of the National Organization Committee of the 10th Euromech Nonlinear Dynamics Conference (ENOC 2020), Lyon, 5-10 July 2020. https://enoc2020.sciencesconf.org/resource/page/id/3

4. Bernard Brogliato is co-organisor (with N. van de Wouw and A. Pavlov) of the mini-symposium Control and Synchronization in Nonlinear Systems, 10th Nonlinear Dynamics Conference (ENOC 2020), Lyon, July 2020. https://enoc2020.sciencesconf.org/resource/page/id/8

5. Bernard Brogliato was co-organisor (with M. Reichhartinger and A. Polyakov) of the invited session Approximation-Methods, Discrete-time Equivalents and Analysis of Sliding Mode Control Systems, conférence NOLCOS 2019, Wien.

9.1.1.2. Reviewer

1. Vincent Acary was reviewer for IFAC World Congress, American Control Conference.

2. Bernard Brogliato was reviewer for IFAC NOLCOS, IFAC World Congress, IEEE International Conference on Decision and Control.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

1. Bernard Brogliato was Associate Editor for ASME Journal of Nonlinear and Computational Dynamics (ending December 2019).

2. Bernard Brogliato was Associate Editor for Nonoinear Analysis: Hybrid Systems (ending December 2019).

9.1.2.2. Reviewer - Reviewing Activities

1. Vincent Acary was reviewer for IEEE Transactions on Automatic Control, Multibody Systems Dynamics, Applied Mathematics and Computation, ASME Journal of Nonlinear and Computational Dynamics, Nonlinear Dynamics, International Journal for Numerical Methods in Engineering, SIAM Journal on Control and Optimization.

2. Bernard Brogliato is a regular reviewer for Automatica, IEEE Transactions on Automatic Control, SIAM Journal on Control and Optimization, Multibody Systems Dynamics, European Journal of Mechanics A/Solids, Set-Valued and Variational Analysis, *etc*.

3. Franck Bourrier was reviewer for International Journal for Numerical and Analytical Methods in Geomechanics, International Journal of Solids and Structures, Computers and Geotechnics, Soils and Foundation, Rock Mechanics and Rock Engineering, European Journal of Environmental and Civil Engineering, Landslides.

4. Guillaume James was reviewer for Multibody System Dynamics, Communications in Mathematical Physics, Physica D.

9.1.3. Invited Talks

1. Vincent Acary gave a keynote lecture at Multibody Dynamics Workshop 2019 2nd International Multibody Summer School, 20-24 May 2019, Parma, Italy http://www.multibodysummerschool.eu/index.html

2. Bernard Brogliato gave a plenary talk at the workshop Control of State-Constrained Dynamical Systems in Valparaiso, September 2019 (http://coscds2019.mat.utfsm.cl/).

3. Guillaume James gave a talk at the conference Equadiff 2019, July 2019, Leiden, in the minisymposium *Coherent structures of nonlinear evolution and lattice equations*.

9.1.4. Leadership within the Scientific Community

- V. Acary is coordinator with R. Leine of the Europe Network for Nonsmooth Dynamics http://ennsd.gforge.inria.fr/.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Licence : G. James, Introduction to Numerical Methods, 31 hETD, L3, Grenoble INP - Pagora (1st year).
- Licence : G. James, Normed Vector Spaces, 26 hETD, L2, Prépa INP, Grenoble.
- Master : G. James, Numerical Methods, 91 hETD, M1, Grenoble INP - Ensimag (1st year).
- Master : G. James, Dynamical Systems, 45 hETD, M1, Grenoble INP - Ensimag (2nd year).
- Master : Vincent Acary, 17H éq TD Systèmes dynamiques, ENSIMAG 2A.
- Master : Franck Bourrier, 5H éq TD Modélisation des chutes de blocs, Master GAIA, Université Savoie Mont-Blanc.

9.2.2. Supervision

- PhD in progress : Rami Sayoud, Analyse vibratoire des armoires électriques, January 2018, université Grenoble Alpes, Vincent Acary and Bernard Brogliato
- PhD in progress : Benoit Viano, Nonsmooth modelling of impacted elastoplastic beams, November 2019, université Grenoble Alpes, Vincent Acary and Franck Bourrier.
- PhD in progress : Charlélie Bertrand, September 2018, Mechanical model for cable vibrations, ENTPE, Claude Lamarque and Vincent Acary.
- PhD in progress : Christelle Kozaily. Structural analysis for multi-mode DAE systems, Octobre 2018, V. Acary and B. Caillaud.
- PhD in progress : Vivien Cros, Analyse de la réponse vibratoire d'arbres sous sollicitations dynamiques, November 2018, université Grenoble Alpes, Franck Bourrier.

9.2.3. Juries

1. Bernard Brogliato was referee for the Ph.D. thesis of Arindam Bhattacharjee (April 2019), IIT Kanpur, India, (supervisor Prof. Anindya Chaterjee, Mechanical Engineering Dept. IIT Kanpur), *New approximations in vibroimpact problems*.

TROPICAL Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- M. Akian is co-chair of the organizing committee of the next 2020 SMAI MODE days, see http://smai-mode2020.inria.fr/.
- Stéphane Gaubert is the coordinator of the Gaspard Monge Program for Optimization, Operations Research and their interactions with data sciences (PGMO), a corporate sponsorhip program, operated by Fondation Mathématique Jacques Hadamard, supported by Criteo, EDF, Orange and Thales, see http://www.fondation-hadamard.fr/fr/pgmo/.

10.1.1.2. Member of the Organizing Committees

- S. Gaubert co-organizes the "Séminaire Parisien d'Optimisation" at Institut Henri Poincaré. https://sites.google.com/site/spoihp/.
- A. Sagnier co-organized the JAMI Workshop, Riemann-Roch theorem in characteristic one and related topics, Univ. Baltimore, Oct. 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- S. Gaubert, Chair of the PGMO days, EDF Lab Paris Saclay, Dec 3-4, 2019. http://www.fondation-hadamard.fr/fr/pgmo/pgmodays

10.1.2.2. Member of the Conference Program Committees

- Marianne Akian is member of the scientific committee of the next 2020 SMAI MODE days, see http://smai-mode2020.inria.fr/.
- S. Gaubert has been a member of the scientific committee of the JAMI Workshop, Riemann-Roch theorem in characteristic one and related topics, Univ. Baltimore, Oct. 2019.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- S. Gaubert is member of the editorial committee of the collection Mathématiques et Applications, SMAI and Springer.
- S. Gaubert is associate editor of Linear and Multilinear Algebra.
- S. Gaubert is associate editor of RAIRO Operations research.
- S. Gaubert is associate editor of the Journal of dynamics and games.

10.1.4. Invited Talks

- M. Akian
  - "Complexity of policy and value iterations for ergodic zero-sum two player games: non-linear Perron-Frobenius methods", Journées annuelles du GDR MOA, Rennes, October 2019.
- S. Gaubert

– "Condition numbers in nonarchimedean semidefinite programming ...and what they say about stochastic mean payoff games", Tropical Mathematics group of the London Math. Soc, Birmingham, January 2019.

– "Nonarchimedean convex programming and its relation to mean payoff games", Game theory conference, CIRM, Luminy, June 2019.

- X. Allamigeon

  – "Tropical geometry meets optimization", conference "Network Games, Tropical Geometry, and Quantum Communication", ZIB, Berlin, June 2019

10.1.5. Leadership within the Scientific Community

- See Section 10.1.1.1 (coordination of PGMO).

10.1.6. Research Administration

- M. Akian :

  – Member of the "comité de liaison SMAI-MODE" since June 2015.

  – Member of the laboratory council of CMAP.

  – Member of the scientific board of Inria.

- S. Gaubert :

  – Chairman of the Gaspard Monge Program for Optimization, Operations Research and their interactions with data sciences (PGMO), see 10.1.1.1 for details.

  – Member of the scientific council of CMAP.

- X. Allamigeon:

  – Member of the scientific committee of Inria Saclay – Ile-de-France.

  – Member of the Applied Mathematics Department committee at Ecole Polytechnique.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- M. Akian

  – Course "Markov decision processes: dynamic programming and applications" joint between (3rd year of) ENSTA and M2 "Mathématiques et Applications", U. Paris Saclay, "Optimization", and shared with Jean-Philippe Chancelier (ENPC), 15 hours each.

- X. Allamigeon

  – Petites classes et encadrement d'enseignements d'approfondissement de Recherche Opérationnelle en troisième année à l'École Polytechnique (programme d'approfondissement de Mathématiques Appliquées) (niveau M1).

  – Cours du M2 "Optimisation" de l'Université Paris Saclay, cours partagé avec Manuel Ruiz (RTE) et Dominique Quadri (LRI, Université Paris Sud).

  – Co-responsabilité du programme d'approfondissement en mathématiques appliquées (troisième année) à l'École Polytechnique.

- S. Gaubert

  – Course "Systèmes à Événements Discrets", option MAREVA, ENSMP.

  – Course "Algèbre tropicale pour le contrôle optimal et les jeux" of "Contrôle, Optimisation et Calcul des Variations" (COCV) of M2 "Mathématiques et Applications" of Paris 6 University and École Polytechnique.

  – Lecture of Operations Research, third year of École Polytechnique. The lectures notes were published as a book [60].

- O. Saadi
  - Exercises classes in the framework of a "Monitorat".
- B. Tran
  - Exercises classes for the first year of Bachelor program of Ecole polytechnique in the framework of a "Monitorat".

10.2.2. Supervision

- PhD: Paulin Jacquot, registered at Univ. Paris Saclay since November 2016, thesis supervisor: Stéphane Gaubert, cosupervision: Nadia Oujdane, Olivier Beaude (EDF), the defense took place in Dec. 2019.
- PhD in progress: Benoît Tran, registered at Univ Paris-Est Marne La Vallée, since September 2017, thesis supervisor: Jean-Philippe Chancelier (ENPC), cosupervision: Marianne Akian.
- PhD in progress: Maxime Grangereau, registered at Univ. Paris Saclay since Jan 2018, thesis supervisor: Emanuel Gobet, cosupervision: Stéphane Gaubert.
- PhD in progress: Omar Saadi, registered at Univ. Paris Saclay since October 2018, thesis supervisor: Stéphane Gaubert, cosupervision: Marianne Akian.
- PhD in progress: Marin Boyet, registered at Univ. Paris Saclay since October 2018, thesis supervisor: Stéphane Gaubert, cosupervision: Xavier Allamigeon.
- PhD in progress: Maël Forcier, registered at ENPC since September 2019, thesis supervisor: Vincent Leclère, cosupervision Stéphane Gaubert.

10.2.3. Juries

- M. Akian
  - Jury of the 2019 competition for a full professor position in Applied Mathematics at Avignon University.
- S. Gaubert
  - Jury of the 2019 competition for CR positions of Inria Saclay–Île-de-France.
  - Jury of the HdR of Pascale Bendotti (Sorbonne Universités, reviewer, June 2019).
  - Jury of the HdR of Arnau Padrol (Sorbonne Universités, examiner, December 2019).
  - Jury of the PhD thesis of Aiwen Li (Angers, reviewer, Sep 2019).
  - Jury of the PhD thesis of J. Trunk (TU-Berlin, reviewer, Oct 2019),
  - Jury of the PhD thesis of Paul Beaujean (Dauphine, reviewer, Dec. 2019).
  - Jury of the PhD thesis of Paulin Jacquot (Ecole Polytechnique, examiner, Dec. 2019).
  - Jury of the PhD thesis of Arnaud Le Rhun (Ecole Polytechnique, president, Dec. 2019).
- C. Walsh
  - Jury of the PhD thesis of Armando Gutiérrez (Aalto University, pre-examiner, Dec. 2019).

10.3. Conferences, Seminars

- M. Akian
  - "Linear algebra and convexity over symmetrized semirings, hyperfields and systems", SIAM Conference on Applied Algebraic Geometry, Bern, July 2019.
  - "The operator approach to entropy games", International Workshop on Operator Theory and Applications (IWOTA), Lisbonne, July 2019.
  - "Linear algebra and convexity over symmetrized semirings, hyperfields and systems", International Conference on Matrix Analysis and its Applications, MAT TRIAD 2019, Liblice, Czech Republic, September 2019.

- – "A game theory approach to the existence and uniqueness of nonlinear Perron-Frobenius eigenvectors", French-German-Swiss (FGS) conference in Optimization, September 2019, Nice.
  - – "De l'ergodicité des jeux à somme nulle à l'existence et l'unicité de vecteurs propres de Perron non linéaires", Workshop "Jeux dynamiques: temps discret, temps continu", Fréjus, October 2019.
  - – "Complexity of policy and value iterations for ergodic zero-sum two player games: nonlinear Perron-Frobenius methods", Journées annuelles du GDR MOA, Rennes, October 2019.

- X. Allamigeon
  - – Condition numbers of stochastic mean payoff games and what they say about nonarchimedean semidefinite programming, SIAM Conference on Applied Algebraic Geometry, Bern, July 2019.

- M. Boyet
  - – The shadow vertex algorithm solves colorful one-versus-all tropical polynomial systems, PGMO Days, Nov. 21, 2018, Palaiseau.

- S. Gaubert
  - – Condition numbers in nonarchimedean semidefinite programming ...and what they say about stochastic mean payoff games, Tropical Mathematics group of the London Math. Soc, Birmingham, January 2019.
  - – Nonarchimedean convex programming and its relation to mean payoff games, Séminaire, Université de Perpignan, March 2019.
  - – Nonarchimedean convex programming and its relation to mean payoff games, Game theory conference, CIRM, Luminy, June 2019.
  - – Dynamics of priority: from emergency call centers to tropical polynomial systems, SIAM Conference on Applied Algebraic Geometry, Bern, July 2019.
  - – Dynamic programming operators over noncommutative spaces: an approach to optimal control of switched systems, International Workshop on Operator Theory and Applications (IWOTA), Lisbonne, July 2019.
  - – The operator approach to entropy games, French-German-Swiss conference in Optimization, September 2019, Nice.
  - – "Convexité ambitropicale – ou comment caractériser les rétracts de Shapley", Workshop "Jeux dynamiques: temps discret, temps continu", Fréjus, October 2019.
  - – From tropical to ambitropical convexity, JAMI Workshop, Riemann Roch in characteristic one and related topics, Baltimore, October 2019.

- P. Jacquot
  - – A Privacy-preserving Disaggregation Algorithm for Non-intrusive Management of Flexible Energy, IEEE 58th Conference on Decision and Control, Nice, France, December 2019.
  - – Peer-to-Peer Electricity Market Analysis: From Variational to Generalized Nash Equilibrium, PGMO Days, December 2019, EDF Saclay, France.
  - – A Privacy-Preserving Disaggregation Algorithm for Nonconvex Optimization based on Alternate Projections, French-German-Swiss Conference on Optimization (FGS), Nice, France, September 2019.
  - – Nonatomic Aggregative Games with Infinitely Many Types, Game Theory Seminar, Insitut Henri Poincaré, Paris, France, October 2019.

- – A Privacy-preserving Method to Optimize Distributed Resource Allocation, Journée de rentrée du CMAP (Invited), Ecole polytechnique, France, October 2019.

- A. Sagnier
  - – Talk at University of Strasbourg on «An arithmetic site at the complex place», April 2019
  - – Talk at University of Antwerp on «An arithmetic site at the complex place»,

    April 2019
  - – Short communication at JAMI 2019 «Riemann-Roch in characteristic one and related topics» on «An arithmetic site at the complex place», Johns Hopkins University, Baltimore, October 2019

- B. Tran
  - – "A Min-Plus / SDDP Algorithm for
    Multistage Stochastic Convex Programming", The XV international conference on stochastic programming (ICSP 2019), Trondheim, July 2019.
  - – "A Min-plus-SDDP Algorithm for Multistage Stochastic Convex Programming", French-German-Swiss Conference on Optimization (FGS), Nice, France, September 2019.
  - – "A Min-plus-SDDP Algorithm for Deterministic Multistage Convex Programming", 58th IEEE Conference on Decision and Control (CDC 2019), Nice, December 2019.

- C. Walsh
  - – "For which ordered vector spaces are all order isomorphisms affine linear?", Advances in the Geometric and Analytic Theory of Convex Cones, Jeju, Korea, May 27–31, 2019.
  - – "Approximability of convex bodies and volume growth in Hilbert geometries", Perspectives on convex projective geometry, Sète, France, 24–28 June 2019.
  - – "For which ordered vector spaces are all order isomorphisms affine linear?", Positivity X, Pretoria, South Africa, 8–12 July, 2019.
  - – "For which ordered vector spaces are all order isomorphisms affine linear?", 30th International Workshop on Operator Theory and its Applications, IWOTA 2019, Lisbon, Portugal, 22–26 July, 2019.

10.4. Popularization

10.4.1. Articles and contents

- The collaboration developed by our team since 2014, with Préfecture de Police, on the performance evaluation of the new organization (PFAU, Plate forme d'appels d'urgences) to handle the calls to the emergency numbers 17-18-112 in the Paris area is described in the following article, published on the Inria web site, https://www.inria.fr/centre/saclay/actualites/gestion-des-appels-d-urgence-une-geometrie-tropicale-pour-les-secours-parisiens

<p style="text-align:center;color:red;font-weight:bold;font-size:large;">VALSE Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Member of the Conference Program Committees

- J.-P. Richard, EUCA-IEEE ECC (Napoli, Italy)
- J.-P. Richard, IFAC TDS (Sinaia, Romania)
- J.-P. Richard, IEEE CODIT (Paris, France)
- D. Efimov, IFAC ALCOS (Winchester, UK)

9.1.1.2. Reviewer

The members of the team participate in reviewing for all major international conferences in the domain of control theory.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- R. Ushirobira, Guest editor, European Journal of Control
- A. Polyakov, Associate editor, Automation and Remote Control
- D. Efimov, Guest editor, International Journal of Control
- D. Efimov, Guest editor, European Journal of Control
- D. Efimov, Guest editor, International Journal on Robust and Nonlinear Control
- D. Efimov, Associate editor, IFAC Journal on Nonlinear Analysis: Hybrid Systems
- D. Efimov, Associate editor, Asian Journal of Control
- D. Efimov, Associate editor, IEEE Transactions on Automatic Control

9.1.2.2. Reviewer - Reviewing Activities

The members of the team participate in reviewing for all major international journals in the domain of control theory: IEEE Transactions on Automatic Control, Automatica, European Journal of Control, International Journal of Control, International Journal on Robust and Nonlinear Control, Asian Journal of Control, SIAM Journal on Control and Optimization etc.

9.1.3. Invited Talks

D. Efimov and A. Polyakov participated in organization of a workshop Finite-, fixed-, and prescribed-time stabilization and estimation for IEEE Conference on Decision and Control (CDC) at Nice.

9.1.4. Research Administration

- J.-P. Richard, Director of the professional training "Researcher" for last year students at Centrale Lille
- R. Ushirobira, a member of the executive board of CIMPA
- R. Ushirobira, the vice-president of the Recruitment research committee of Inria Lille (PhD, postdoc, secondments, visitors)

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: J.-P. Richard, Dynamical systems, 10h, M2, Université de Lille, France

Licence: R. Ushirobira, Basic courses in Linear algebra and Calculus, 75h, L3, Polytech Lille, France

Master: D. Efimov, Dynamical systems, 17h, M2, Université de Lille, France

Licence: D. Efimov, Estimation for engineers, 24h, L3, École Centrale de Lille, France

9.2.2. Supervision

PhD: Y. Wang, Development of a blimp robot for indoor operation, École Centrale de Lille, 15/03/2019

PhD: T. Kharkovskaya, Design of interval observers for uncertain distributed systems, École Centrale de Lille & ITMO University (Russia), 02/12/2019

9.2.3. Juries

- R. Ushirobira, a member of PhD thesis committee of D. Yamalova (Uppsala University, Sweden), June 2019

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

At Inria (Lille), R. Ushirobira is responsible for a monthly organized talks "30 minutes de sciences".

9.3.2. Education

- R. Ushirobira, referent researcher for projects with middle-school students at Collège A. Daudet (Leers) within the framework of Math en Jeans

ABS Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events: Organisation

7.1.1.1. General Chair, Scientific Chair
– Frédéric Cazals:

- F. Cazals co-organized, with P. Alliez and F. Chazal, the conference *New Horizons in Computational Geometry and Topology*, held at Sophia Antipolis (September 5-6, 2019) in honor of J-D. Boissonnat. See https://project.inria.fr/jdb2019/en/.

7.1.2. Scientific Events: Selection

7.1.2.1. Member of the Conference Program Committees

– Frédéric Cazals was member of the following program committees:

- Symposium on Computational Geometry
- Symposium On Geometry Processing
- International Conference on Computational Systems-Biology and Bioinformatics:
- Intelligent Systems for Molecular Biology (ISMB), PC member of Protein Interactions & Molecular Networks

7.1.2.2. Reviewer

– Frédéric Cazals reviewed for the following journals:

- Bioinformatics
- Discrete and applied mathematics
- PLOS Computational Biology
- PLOS One

7.1.3. Invited Talks

– Frédéric Cazals gave the following invited talks:

- *Multiscale molecular flexibility analysis: novel insights.* MPI Frankfurt, July 2019.
- *Multiscale molecular flexibility analysis: novel insights.* Conference of the Polish Bioinformatics Society, Torun, June 2019.
- *Bio-molecules: on the role of geometry in the tryptic structure - dynamics -function.* Meeting of the French Academy of Sciences, French Riviera, June 2019.
- *Leveraging structural data by decoupling structure, thermodynamics and dynamics*, Challenges in large scale biomolecular simulation, Inst. Etudes Sc. de Cargese, France, May 2019
- *Mining molecular flexibility: novel tools, novel insights*, University College, London, April 2019.
- *Novel structural parameters of IG-Ag complexes yield a quantitative description of interaction specificity and binding affinity*, Journées scientifiques de la SFHI (Soc. Fr. d'histocompatibilité et d'immunogénétique), Paris, Mars 2019.

7.1.4. Leadership within the Scientific Community

– Frédéric Cazals:

- 2010-.... Member of the steering committee of the *GDR Bioinformatique Moléculaire*, for the *Structure and macro-molecular interactions* theme.
- 2017-2019. Co-chair, with Yann Ponty, of the working group / groupe de travail *(GT MASIM - Méthodes Algorithmiques pour les Structures et Interactions Macromoléculaires*, within the *GDR de BIoinformatique Moléculaire* (GDR BIM, http://www.gdr-bim.cnrs.fr/).

7.1.5. Scientific Expertise

– Frédéric Cazals:

- 2019: reviewer for ERC consolidator grants.

7.1.6. Research Administration

– Frédéric Cazals:

- 2017-.... President of the *Comité de suivi doctoral* (CSD), Inria Sophia Antipolis - Méditerranée. The CSD supervises all aspects of PhD student's life within Inria Sophia Antipolis - Méditerranée.
- 2018-.... Member of the *bureau du comité des équipes projets*.

– Dorian Mazauric:

- 2019-.... Head of *Commission Mastic* (Médiation et Animation des MAthématiques, des Sciences et Techniques Informatiques et des Communications), Inria Sophia Antipolis - Méditerranée.
- 2016-2019. Member of the *Comité de Centre*, Inria Sophia Antipolis - Méditerranée.
- 2018-2019. Member of the *Commission de Développement Technologique*, Inria Sophia Antipolis - Méditerranée.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

- Master: Frédéric Cazals (Inria ABS) and Frédéric Chazal (Inria Saclay), *Foundations of Geometric Methods in Data Analysis*, Data Sciences Program, Department of Applied Mathematics, Ecole Centrale Paris. (http://www-sop.inria.fr/abs/teaching/centrale-FGMDA/centrale-FGMDA.html)
- Master : Dorian Mazauric, Algorithmique et Complexité, 23h30 TD, niveau M1, École Polytechnique de l'Université Nice Sophia Antipolis, filière Sciences Informatiques, France.
- Bachelor : Dorian Mazauric, Langages Formelles et Automates, 24h TD, niveau L3, École Polytechnique de l'Université Nice Sophia Antipolis, filière Sciences Informatiques, France.
- Bachelor : Dorian Mazauric, Algorithmique, 3h de cours et 8 heures de TD, niveau licence, Université Côte d'Azur, Diplôme interuniversitaire (formation des enseignants de lycée), Sophia Antipolis, France.

7.2.2. Supervision

- **PhD, 4th year:** Augustin Chevallier, *Random walks for estimating the volume of convex bodies and densities of states in high dimensional spaces*. Defended on the 08/04/2019. Université Côte d'Azur.
- **PhD in progress, 3rd year:** Méliné Simsir, *Modeling drug efflux by Patched*. Université Côte d'Azur. Thesis co-supervised by Frédéric Cazals and Isabelle Mus-Veteau, IPMC/CNRS.
- **PhD in progress, 2nd year:** Timothée O'Donnel, *Modeling the influenza polymerase*. Université Côte d'Azur. Thesis co-supervised by Frédéric Cazals and Bernard Delmas, INRA Jouy-en-Josas.
- **PhD in progress, 2nd year** : Thi Viet Ha Nguyen, Graph Algorithms techniques for (low and high) resolution models of large protein assemblies, Frédéric Havet (Inria/I3S project-team Coati) and Dorian Mazauric.

7.2.3. Juries

– Frédéric Cazals:

- Maria Elisa Ruiz Echartea, Université de Lorraine, December 2019. Rapporteur on the PhD thesis *Multi-component protein assembly using distance constraints*. Advisors: David W. Ritchie - Marie-Dominique Devignes.

- Alba Chiara De Vitis, Université Côte d'Azur, May 2019. Committee member. *Kernel Methods for High Dimensional Data Analysis*. Advisors: D. Cohen-Steiner, J-D. Boissonnat.

- Juraj Michalik, Ecole Polytechnique, March 2019. Rapporteur on the PhD thesis *Non-redundant sampling in RNA bioinformatics*. Advisors: Yann Ponty and Hélène Touzet.

7.3. Popularization

This part mainly concerns Dorian Mazauric.

7.3.1. Internal or external Inria responsibilities

- 2019-.... Head of *Commission Mastic* (Médiation et Animation des MAthématiques, des Sciences et Techniques Informatiques et des Communications), Inria Sophia Antipolis - Méditerranée.

- 2019-.... Coordinator of *Terra Numerica – vers une Cité du Numérique*.

- 2018-2019. Member of the *Conseil d'Administration de l'association les Petits Débrouillards*.

- 2018-2019. Coordinator of *projet de médiation Galéjade* : Graphes et ALgorithmes : Ensemble de Jeux À Destination des Ecoliers... (mais pas que).

7.3.2. Articles and contents

See https://galejade.inria.fr and http://terra-numerica.org/.

7.3.3. Education

- 26/10/2019. Animation d'ateliers de GALEJADE au weekend d'initiation à la culture numérique organisé par Class'Code MED. Graphes, algorithmes et magie des mathématiques et de l'informatique.

- 03/06/2019. Formation d'enseignants à Draguignan (ÉSPÉ de l'Académie de Nice). Graphes et algorithmes.

- 05/04/2019. Coordination d'ateliers Galejade animés par des enseignants et des parents d'élèves de l'école Pasteur du Cannet (suite à une formation Galejade quelques mois plus tôt). Ateliers Galejade.

- 22/03/2019. Formation d'enseignants de REP+ à l'ÉSPÉ de l'Académie de Nice (site de Stéphen Liégeard).

- 26/02/2019. Formation des étudiants de l'ÉSPÉ de l'Académie de Nice (site de Stéphen Liégeard) à l'animation d'activités informatiques et mathématiques. En collaboration avec l'Inspection Académique. Dans le cadre de la semaine des mathématiques. Graphes, algorithmes, jeux et magie des mathématiques.

7.3.4. Interventions

- National events:

  – 19-20/10/2019. Ateliers au village des sciences et de l'innovation au Palais des Congrès d'Antibes Juan-les-Pins. Voyage en train au pays des graphes, des algorithmes et de l'intelligence artificielle.

  – 06/10/2019. Atelier au village des sciences de Nice. Fête de la Science 2019. Le plus grand réseau de tri humain du monde.

- – 05/10/2019. Ateliers et conférence au village des sciences de Villeneuve-Loubet. Fête de la Science 2019. Algorithmes grandeur nature ? La magie des graphes et du binaire.
- – 4/10/2019. Conférence à la maison des associations de Nice (114 élèves de première et terminal). Fête de la Science 2019. Pas besoin de réfléchir, les ordinateurs calculent tellement vite ?
- – 03/10/2019. Deux conférences et ateliers au collège de la Vésubie-Jean Salines à Roquebillière. Fête de la Science 2019. La magie des graphes et du binaire ? Algorithmes grandeur nature ? Pas besoin de réfléchir, les ordinateurs calculent tellement vite ? Théorie des graphes et algorithmique pour les réseaux.
- – 26/03/2019. Fête des maths à l'ÉSPÉ de l'Académie de Nice (site de Stéphen Liégeard). Graphes et Algorithmes.
- – 26/02/2019. Formation des étudiants de l'ÉSPÉ de l'Académie de Nice (site de Stéphen Liégeard) à l'animation d'activités informatiques et mathématiques. En collaboration avec l'Inspection Académique. Dans le cadre de la semaine des mathématiques. Graphes, algorithmes, jeux et magie des mathématiques.
- Public exhibitions (Futurs en Seine,...)
  - – 24/05/2019. Présentation du projet Galéjade à l'AFINEF'Tour Sophia Antipolis (avec EducAzur).
  - – 18/05/2019. Semaine du Numérique à Valbonne. Algorithmes pour toute la famille.
  - – 27-28/04/2019. Atelier et conférences au festival Les Souffleurs d'Avenir. La magie des graphes, des algorithmes et du binaire.
- In educational institutions
  - – 11/01/2019. Conférence au lycée Léonard de Vinci d'Antibes (deux classes de terminale). Pas besoin de réfléchir, les ordinateurs calculent tellement vite ? Théorie des graphes et algorithmique pour les réseaux ? Présentation du métier de chercheur.
  - – 11/10/2019. Deux conférences au collège la Chênaie à Mouans Sartoux. La magie des graphes et du binaire ? Jeux combinatoires.
  - – Année scolaire 2019/2020. Projets dans le cadre de MATh.en.JEANS au collège Jean Rostand de Nice. Avec Olivier Ginola.
  - – 03/10/2019. Deux conférences et ateliers au collège de la Vésubie-Jean Salines à Roquebillière. Fête de la Science 2019. La magie des graphes et du binaire ? Algorithmes grandeur nature ? Pas besoin de réfléchir, les ordinateurs calculent tellement vite ? Théorie des graphes et algorithmique pour les réseaux.
  - – 26/03/2019. Conférence au collège Jules Romains de Nice (classes de sixième). La magie des graphes, des algorithmes et du binaire.
  - – 13/03/2019. Conférences et ateliers au collège Alphonse Daudet de Nice (deux classes de sixième et deux classes de cinquième). Magie mathématique et jeux combinatoires.
  - – 05/04/2019. Coordination d'ateliers Galejade animés par des enseignants et des parents d'élèves de l'école Pasteur du Cannet (suite à une formation Galéjade quelques mois plus tôt). Ateliers Galejade.
- Welcoming of schoolchildren or the general public in an Inria center: MathC2+ internship, open days,...
  - – Semaine du 16 décembre 2019. Accueil de 12 stagiaires de troisième à Inria Sophia Antipolis - Méditerranée.
  - – 28/06/2019. Activité pour une quarantaine d'étudiants de classes préparatoires scientifiques de Sophia Antipolis. Algorithmes de tri.

- 14/06/2019. Activité pour une quarantaine de lycéens des Alpes-Maritimes (accueillis à Inria Sophia Antipolis - Méditerranée durant 4 jours dans le cadre du stage MathC2+). Algorithmes grandeur nature.
- 26/04/2019. Visite d'une dizaine de jeunes de la mission locale de Grasse à Inria Sophia Antipolis - Méditerranée. La magie des graphes, des algorithmes et du binaire.

7.3.5. Internal action

- Internal meetings such as Café des sciences
  - 29/04/2019. Café-in à Inria Sophia Antipolis - Méditerranée (séminaire interne pour tous les membres du centre de recherche : chercheurs, ingénieurs, administratifs...). Ateliers Galejade.
- Training of colleagues on new contents or media (activités débranchées, Poppy Ergo, Tensor-Flow,...)
- Training follow-up (Media Training, new media such as Poppy ergo, with SIF, etc.)
- Science outreach towards services (DPEI, STIP...)

7.3.6. Creation of media or tools for science outreach

See https://galejade.inria.fr and http://terra-numerica.org/.

<p align="center" style="color:red">**AIRSEA Project-Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Journal

9.1.1.1. Member of the Editorial Boards

F. Lemarié is associate editor of the Journal of Advances in Modeling Earth Systems (JAMES)

9.1.1.2. Reviewer - Reviewing Activities

E. Blayo: reviewer for Ocean Modelling, Journal of Scientific Computing

F. Lemarié reviewed papers for Q. J. Roy. Meteorol. Soc. , Ocean Model. and J. Adv. Mod. Earth Sys.

9.1.2. Invited Talks

E. Blayo: Journées Tarantola : défis en géosciences, Paris, juin 2019

E. Blayo: Workshop Modélisation océan-atmosphère, Rennes, septembre 2019

F.-X. Le Dimet: The Mathematics of Climate and the Environment, IHP Paris 2019, Nov. 12-15

F. Lemarié has given an invited talk at the Banff International Research Station during the Physics-Dynamics Coupling in Earth System Models workshop [21]

9.1.3. Leadership within the Scientific Community

L. Debreu is the chair of the CNRS-INSU research program LEFE-MANU on mathematical and numerical methods for ocean and atmosphere https://insu.cnrs.fr/fr/methodes-mathematiques-et-numeriques-manu since April 2018.

L. Debreu is the coordinator of the national group COMODO (Numerical Models in Oceanography).

L. Debreu is a member of the steering committee of the CROCO ocean model https://www.croco-ocean.org

9.1.4. Scientific Expertise

E. Blayo was the head of the HCERES evaluation committee for the Maison de la Simulation (Jan. 2019)

F. Lemarié is a member of the CROCO (https://www.croco-ocean.org/) scientific committee in charge of the « numerical methods » topic.

F. Lemarié is a member of the NEMO (https://www.nemo-ocean.eu/) Developers Committee as external expert.

9.1.5. Research Administration

E. Blayo is a deputy director of the Jean Kuntzmann Lab.

L. Debreu is a member of the scientific evaluation committee of the French Research Institute for Development (IRD).

E. Arnaud is in charge of the AMAC (Algorithmes, Modeles, Analyses, Calcul) department of the Jean Kuntzmann Lab.

C. Prieur is a member of the Scientific Council of the Mathematical Society of France (SMF).

C. Prieur is a member of the Research Council of UGA.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: E. Blayo, Mathematical analysis, 80h, L1, University Grenoble Alpes, France

License: E. Arnaud, Mathematics for engineer, 50h, L1, University Grenoble Alpes, France.

License: E. Arnaud, statisctics for biologists, 40h, L2, University Grenoble Alpes, France.

Licence: C.Kazantsev, Mathematical tools for scientists and engineers, 100h, L1, University Grenoble Alpes, France

Licence: C.Kazantsev, Mathematics for engineer, 60h, L2, University Grenoble Alpes, France

Master: E. Blayo, Partial Differential Equations, 45h, M1, University Grenoble Alpes, France

Master: E. Arnaud, A. Vidard: Inverse problem and data assimilation, 28h, M2, Univ. Grenoble-Alpes, France

Master: E. Arnaud: Advising students on apprenticeship, 28h, M2, University of Grenoble, France.

Doctorat: E. Blayo, A. Vidard, Introduction to Data Assimilation, 20h,University Grenoble Alpes, France

E-learning: E. Arnaud, Mathematics for engineer, L1, Pedagogical resources on http://math.u-ga.fr and videos for http://tinyurl.com/youtube-mat207

E-learning: E. Arnaud, Inverse problem and data assimilation, L2, Pedagogical resources on http://math.u-ga.fr

9.2.2. Supervision

Intern : Simon Clément, Study of discretized Schwarz waveform relaxation algorithms, M2R, applied mathematics, UGA, 6 months, E. Blayo and F. Lemarié

PhD in progress : Sophie Théry, Numerical study of coupling algorithms and boundary layer parameterizations in climate models. October 2017, E. Blayo and F. Lemarié.

PhD in progress : Emilie Duval, Coupling hydrostatic and nonhydrostatic ocean circulation models. October 2018, L. Debreu and E. Blayo.

PhD in progress : Long Li, Assimilation d'image pour le suivi de polluants, September 2017, A. Vidard, J.-W. Ma (Harbin University, China).

PhD in progress: Victor Trappler, Parameter control in presence of uncertainties, October 2017, E. Arnaud, L. Debreu and A. Vidard.

PhD in progress : Rishabh Batth, Asynchronousparallel in time schemes for data assimilation, December 2019, L. Debreu and A. Vidard.

PhD in progress : Simon Clément, Numerical analysis for reconciling in space and time the air-sea exchanges and their parameterization. October 2019, E. Blayo and F. Lemarié.

PhD in progress: Adrien Hirvoas, Development of a data assimilation method for the calibration and continuous update of wind turbines digital twins, May 2018, E. Arnaud, C. Prieur, F. Caleyron

PhD: Mohamed Reda El Amri, Analyse d'incertitudes et de robustesse pour les modèles à entrées et sorties fonctionnelles,[1], Univ.Grenoble Alpes, April, 29, 2019. Clémentine Prieur, Céline Helbert (Centrale Lyon), funded by IFPEN, in the OQUAIDO chair program.

Post Doc in progress : Anass El Aouni, Multi-resolution techniques for ocean data assimilation, October 2019, A. Vidard

9.2.3. Juries

Arthur Vidard

Feb. 2019: PhD thesis of Olivier Guillet, INPT Toulouse (reporter)

E. Blayo:

Feb. 12, 2019: PhD thesis of Benoît Pinier, University of Rennes (reporter)

Apr. 5, 2019: HDR thesis of Sophie Ricci, University of Toulouse (reporter)

Oct. 21, 2019: PhD thesis of Jai Chowdhry Beeman, University Grenoble Alpes (president)

Dec. 18, 2019: PhD thesis of Alexandre Devers, University Grenoble Alpes (president)

Arthur Vidard was part of Inria CRCN recruitment juries in Bordeaux–Sud-ouest and Lille-Nord Europe

E. Arnaud is in charge of ATER recruitment in computer sciences, University Grenoble Alpes

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

E.Kazantsev is a member of the Local Commission for Permanent Formation of Inria Grenoble - Rhône-Alpes.

9.3.2. Education

Ch. Kazantsev and E. Blayo are strongly involved in the creation and dissemination of pedagogic suitcases with mathematical activities designed for primary and secondary school (used by 10,000 – 12,000 pupils in 2018-2019). This is done in collaboration with the Rectorat de Grenoble.

E. Arnaud has animation of a "laboratoire des mathématiques", Pablo Neruda School, Saint Martin d'Hères

C. Kazantsev is a member of an IREM group for creation of scientific activities for professional development of secondary schools teachers.

C. Kazantsev is a member of an International Inter-IREM commission, which work on the multi-languages problem for children in the mathematical learning. Three meetings take place in Paris during the year, the first was on September 28.

C. Kazantsev participated to the collaboration program with the Ecole Normale Supérieure de Bamako, Mali. She spent ten days in Bamako to present the modelisation teaching and the purpose and activities of "La Grange des Maths" group. Bamako, ENSup, January, 13-25

C. Kazantsev participated to the "Colloque du cinquantenaire des IREM" with a presentation of the activities of "La Grange des Maths", Besançon, May, 9-11

9.3.3. Interventions

National events:

Ch. Kazantsev and E. Blayo are strongly involved in the creation of "La Grange des maths", a science popularization center that will be located in Varces (south of Grenoble), which will offer a huge variety of mathematical hands-on exhibits. See http://www.la-grange-des-maths.fr/

Ch. Kazantsev participated at the "Culture and mathematical games Salon", Place St Sulpice, Paris, 23-26 May.

Ch. Kazantsev and E. Blayo participated in the "Fête de la Science", October, 12.

E. Arnaud. gave a presentation "(Se) tromper avec les chiffres" at the conference "Sciences et esprit critique, interroger les certitudes", Maison pour la sciences, Acadèmie de Grenoble, 8 nov. 2018, Grenoble.

Public exhibitions

C.Kazantsev participated in the "Oriel des Maths" and in the "Forum des associations" with the presentation of the "La Grange des Maths" center and its activities. Varces, March, 10.

C.Kazantsev participated at the "Remue-méninges festival" with the presentation of the "Maths à modeler" activities. Echirolles, April, 11.

C.Kazantsev participated to the "Sou des écoles", with the presentation of the "La Grange des Maths" activities. Varces, June, 15.

C.Kazantsev participated at the "Raout de Domène" with the presentation of mathematical animations. Domene, September, 1.

In educational institutions

E. Blayo gave several outreach talks, in particular for middle school and high school students, and for more general audiences.

C.Kazantsev presented mathematical animations to pupils of the Jean Mermoz scholl in Poisat for about 80 children during 3 hours. Poisat, May, 29.

E. Arnaud gave a talk "(Se) tromper avec les chiffres" for pupils of secondary schools on the 8th of March 2019 and the 2nd of May 2019.

9.3.4. Creation of media or tools for science outreach

C.Kazantsev participated in the edition of the Teachers notebooks which explain and advise how to use the "La Grange Suitcases" (sets of mathematical games, problems and animations) destined for primary and secondary schools teachers as well as for the general public.

C.Kazantsev participated in the creation of mathematical activities that can be autonomously used by schoolchildren of primary and secondary schools and by the general public.

E. Arnaud, in charge of the UGA Idex project math@uga : implementation of a collaborative moodle platform http://math.u-ga.fr to share pedagogical resources within teachers and towards students.

E. Arnaud, participation to UGA Idex projects Caseine and data@ugat

ANGE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

Some members of ANGE were in the organizing committees of scientific events.

- J. Sainte-Marie took part of the organization of the 7th EGRIN summer school that took place at Le Lioran from 24th to 27th of June and that gathered 40 researchers [0].
- J. Sainte-Marie belongs to the "Groupe de travail Recherche et développement durable" at french ministry of research.
- Y. Penel and N. Aguillon organize the monthly ANGE seminar [0]. The speakers were : F. Allaire, M. Peruzzetto (IPGP), L. Boittin, S. Junca (Nice), H. Martin, A. Leprevost, M. Parisot, C. Donadello (Besançon), A. Lesieur, M. Rigal, M. Ancellin (Sorbonne Univeristé).
- J. Salomon co-organises the LJLL-Inria meetings [0] (twice a month).
- M. Parisot and J. Salomon organized the conference "EmrSim2019" [0] from 2nd to 4th July.
- Y. Penel and J. Sainte-Marie organized the session "challenges in geosciences" in the framework of Tarantola days [0] from 6 to 7 June.
- C. Guichard co-organized the "Journée d'Accueil des nouveaux recrutés en Mathématiques", at IHP [0]
- E. Godlewski is the president of the CFEM (commission française pour l'enseignement des mathématiques).
- E. Godlewski took part of the organization of the 50th birthday of the "laboratoire J-L. Lions" by giving a talk "Le rayonnement de l'école Lions. Vers une politique scientifique".

10.1.2. Journal

The summary of the reviewing activities of the team is given in the next table.

Member	Journals
JS	CRAS, SIAM SISC, JCP
CG	Computers and Mathematics with Applications, Numerische Mathematik
EG	M2AN, JCP, AIDE, JEP
MP	Journal of Hydraulic Research, DCDS, JCP, Journal of Computational Science
VM	JCP
JSM	M2AN, JCP, Applied Mathematical Modeling

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[0] https://indico.math.cnrs.fr/event/4391/
[0] https://team.inria.fr/ange/gdt-slides/
[0] https://project.inria.fr/rencontresljll/fr/
[0] https://emrsim2019.sciencesconf.org/
[0] https://ange-geophysics.sciencesconf.org/
[0] http://postes.smai.emath.fr/apres/accueil/

10.1.3. Invited Talks

Member	Conference	Location	Date
JS	Colloque d'ouverture 50 ans du LJLL	Roscoff	4-8/3
NA	Séminaire Centrale Paris	Saclay	05/12
NA	journée de clôture MANON	Paris	March
NA	journée Tarantola : défis en géosciences	Paris	June
VD	CEMRACS	Marseille	13/08
VD	Congrès SMAI	Guidel	16/05
VD	EGRIN	Le Liorant	25/06
CG	journée Tarantola : défis en géosciences	Paris	June
FA	GdT ANGE	Inria Paris	23/01
YP	séminaire de l'équipe ACSIOM	Montpellier	19/02
YP	séminaire d'analyse appliquée	Amiens	14/01
YP	Congrès SMAI	Guidel	16/05
YP	Ecole EGRIN	Le Liorant	24/06
YP	ICIAM	Valencia (Spain)	16/07
MP	séminaire de l'IRMAR	Rennes	28/02
MP	Cours sur les modèles dispersif	Aachen	22-24/10
MP	Séminaire d'équipe d'analyse numérique	Aachen	31/10
VM	Nommer, modéliser, représenter le hasard dans les arts et les sciences	Arras	15/03
VM	AI for Climate	Paris	20/09
VM	Séminaire du laboratoire Jacques-Louis Lions	Paris	25/10
VM	AI, data and models for sustainable development, COP25	Madrid	3/12
JSM	"Geophysical flows - From hydrostatic to non-hydrostatic models"	Malaga	22/09

10.1.4. Research Administration

- J. Sainte-Marie is now "Adjoint au Directeur Scientifique" of Inria, in charge of the topic "Sciences de la planète, de l'environnement et de l'énergie".

- J. Salomon belongs to Inria's "Commission des emplois scientifiques".

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

10.2.2. Supervision and Jury

Table 3. Teaching (1/2)

Member	Topic	Duration	Level	Institution	Type (CM,TD,TP)
JS	Méthodes numériques pour des modèles incluants des EDP	45	M2	Université d'Abomey-Calavi, Bénin	CM
JS	Méthodes numériques pour des modèles incluants des EDP	45	M2	Univ. Paris-Dauphine	CM
VD	Mathématiques appliquées	32	L3	Polytech Sorbonne	TP
VD	Traitement numérique	14+22	M1	Polytech Sorbonne	CM+TP
VD	Initiation Latex	4	L3	Polytech Sorbonne	CM
LL	Méthodes numériques pour les équations différentielles	24	L3	Sorbonne Université	TP
LL	Mathématiques pour les études scientifiques I	102	L1	Sorbonne Université	TD
LL	Mathématiques pour DU RESPE S2	12	L0	Sorbonne Université	CM+TD
LL	Mathématiques pour DU RESPE S1	10	L0	Sorbonne Université	CM+TD
NA	Topologie et calcul différentielle	111	L2	Sorbonne Université	CM+TD
NA	Projet	15	L3	Sorbonne Université	TD
CG	Fondements des méthodes numériques	58	M1	SU	TP
CG	Méthodes numériques	31	M2	SU	CM+TD
CG	Co responsable de la majeure Ingénierie Mathématiques pour l'Entreprise		M2	SU	
BDM	Analyse et TP Python Sage algèbre et analyse	72	L2	Univ. Corse	C+TD+TP
BDM	Analyse numérique matricielle	54	L3	Univ. Corse	C+TD+TP
EG	Modèles hyperboliques d'écoulements complexes dans le domaine de l'énergie	10	M2	SU	CM
NB	Analyse2	15	L1	Paris13	TD
NB	Analayse3: Intégrales et séries	30	L2	Paris13	TD

Table 4. Teaching (2/2)

Member	Topic	Duration	Level	Institution	Type (CM,TD,TP)	
JS	VM	Simulation de la dispersion atmosphérique	3	M2	ENPC	TP
VM	Assimilation de données pour la géophysique	7	M2	ENPC	TP	
JH	Méthodes numériques pour les équations différentielles	25	L3	Sorbonne Université	TP	
JH	Analyse Appliquée	40	L3	Sorbonne Université	TD	
EA	Equations différentielles	30	L3	Paris13	TD	
EA	Optimisation différentiable	30	M1	Paris13	TD	
EA	Mécanique des fluides	18	M1	Paris13	CM	
EA	Calcul scientifique	30	L2	Paris13	CM+TD	
YP	Equations différentielles	15	L2	Paris 13	CM+TD	

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- J. Salomon is a member of the "Commission Mentorat" in view of introducing a mentoring procedure in Inria-Paris,
- Y. Penel and C. Guichard belong to the "Groupe de travail Developpement Durable d'Inria Paris",
- J. Sainte-Marie took part of the committe MakeSenSe, that produced the report [14].

10.3.2. Education

- Congrès MATh.en.JEANS (CentraleSupélec, Modélisation de certains écoulements),
- E. Godlewski and J. Salomon dealt with secondary-school pupils in the framework of observation training course at LJLL and Inria, respectively,
- N. Aguillon was in the organizing committe of "Mathematic Park",
- N. Aguillon was in the organizing committe of "Cycle SMAI-Musée des arts et métiers",
- J. Salomon co-organized the stand "Logiciel Libre" at the "Salon Culture et Jeux mathématiques, 2019".

10.3.3. Interventions

- J. Sainte-Marie organized a round-table discussion about "Mathématiques et environnement" at the "Forum Emploi-Math 2019" (14/11).
- J. Sainte-Marie organized a debate "la sobriété numérique" at "cité des Sciences et de l'industrie" (15/11).

Table 5. Supervision of thesis and intership (1/2)

Member	Other advisors	Type	Student	Institution	Period	Title
JS		PhD	Sebastian Reyes-Riffo	Paris-Dauphine	2016-2019	Méthodes numériques pour les énergies marines renouvelables
JS, VM		PhD	Antoine Lesieur	Inria	2017-2020	Estimation d'état et modélisation inverse appliquées à la pollution sonore en milieu urbain
JS		PhD	Nadia Jbili	Paris-Dauphine	2016-2019	Contrôle optimal pour la résonance magnétique nucléaire
JS, JSM		PhD	Liudi Lu	Inria	2018-2021	Approches Lagrangiennes pour la modélisation et l'optimisation du couplage hydrodynamique-photosynthèse
JSM, VM		PhD	Frédéric Allaire	Inria	2017-2020	Quantification du risque incendie par méta-modélisation de la propagation de feux de forêt
YP, CG, JSM		PhD	Virgile Dubos	SU	2017-2020	Numerical methods for the elliptic/parabolic parts of non-hydrostatic fluid models
NA, EA, MP		PhD	Nelly BOULOS	Paris 13	2018-2021	Modélisation et simulation numérique de la dynamique d'un acquifère érodable
VM	Isabelle Herlin	PhD	Ngoc Bao Tran Le	Inria	2016-2019	Uncertainty quantification based on model reduction for atmospheric dispersion
VM		Post Doc	Janelle Hammond	Inria	2017-2020	Uncertainty quantification, metamodeling and data assimilation applied to urban air quality
EA,MP,JSM		PhD	Léa Boittin	inria	2016-2019	Modelling, analysis and efficient numerical resolution for erosion processes

Table 6. Supervision of thesis and intership (2/2)

NA		Stage M2	Mathieu Rigal	UPMC	2019	Schéma exact sur les chocs isolés pour les équations de St Venant avec topographie
NA, JSM	Nathalie Ayi	PhD	Mathieu Rigal	UPMC	2019-2022	Low Froude regime and dispersive effects in kinetic formulations
BDM, JSM		Stage M2	Chourouk El Hassanieh	Inria	04-08/2019	Multilayer Shallow Water Equations: Derivation, Properties, and Well Posedness
BDM, JSM	Samer Israwi	PhD	Chourouk El Hassanieh	Inria	2019-2022	Mathematical and numerical analysis of some dispersive models in fluids mechanics

Table 7. Participation to committees

Initiales	Mois	Type (PhD, HdR)	Rôle (rapp., prés., mbre)	Prénom Nom candidat	Etablissement	Titre
JS	Novembre	PhD	rapporteur	Pierre-Yves Wuillaume	Ecole Centrale de Nantes	Simulation numérique des opérations d'installation pourles fermes d'éoliennes offshore
NA	juillet	PhD	examinatrice	Mostafa Kadiri	Normandie Université	Optimisation de forme et applications aux ouvrages hydrauliques
CG	mars	PhD	examinatrice	Patrik Daniel	SU et Inria	Adaptive hp-finite elements with guaranteed errorcontraction and inexact multilevel solvers
CG	septembre	PhD	examinatrice	Pierrick Quemar	Paris 13 et EDF	MODELING AND NUMERICAL ANALYSIS OF FREE SURFACE FLOWS
CG	novembre	PhD	invitée	Karine LAURENT	IFPEN et Univ. Paris Saclay	Étude de nouveaux schémas numériques pour la simulation des écoulements à rapport de mobilités défavorable dans un contexte EOR
JSM	novembre	PhD	examinateur	Sebastian Reyes Riffo	PSL	Méthodes mathématiques pour l'extraction d'énergie marine
JSM	décembre	PhD	rapporteur	H. Boukili	univ. Marseille	Schémas de simulation d'un modèle à trois phases immiscibles pour application à l'explosion vapeur
EG	novembre	thèse (PhD)	présidente	Jean-François Abadie	SU	Estimations fiables d'une fonction et de ses dérivées & Étude théorique et numérique d'un problème de "shape from shading"
YP	novembre	PhD	rapporteur	Victor Osores	Univ. Concepcion, Chile	On multilayer shallow water systems for polydisperse sedimentation

ARAMIS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- S. Durrleman was general chair of the international Neuro Open Science Workhshop (ICM, Paris)

10.1.1.2. Member of the Organizing Committees

- N. Burgos organized the international workshop on Simulation and Synthesis in Medical Imaging (SASHIMI) 2019, a satellite workshop of MICCAI 2019.
- N. Burgos organized a PRACE training event (Introduction to machine learning in Python with Scikit-learn)
- F. De Vico Fallani co-organized the Network Neuroscience satellite within the NetSCI conference.
- S. Durrleman co-organized the international workshop on the Mathematical Foundations of Computational Anatomy (MFCA), a satellite workshop of MICCAI 2019.
- S. Durrleman co-organized the workshop GEANT (GEstion et pArtage de données en NeuroinformaTique), Marseille Medical School.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- O. Colliot served as Program Committee member for the international conference SPIE Medical Imaging (San Diego, USA, 2019) and for the international workshop PatchMI (Shenzen, China, 2019).
- O. Colliot served as Award Committee member for the international conference of the Organization for Human Brain Mapping (OHBM, meeting held in Rome, Italy, 2019).
- F. De Vico Fallani served as Program Committee member for the international conference Netsci, Complenet, Complex networks.
- S. Durrleman served as Program Committee member for the international workshop Medical Imaging meets NeurIPS.

10.1.2.2. Reviewer

- O. Colliot acted as a reviewer for the international conferences SPIE Medical Imaging, Annual meeting of the Organization for Human Brain Mapping (OHBM) and the international workshop PatchMI.
- N. Burgos acted as a reviewer for the international conference Annual meeting of the Organization for Human Brain Mapping (OHBM), for the international workshop on Simulation and Synthesis in Medical Imaging (SASHIMI), and for the GRETSI symposium of signal and image processing.
- F. De Vico Fallani acted as a reviewer for the international conference on Brain-computer interfaces (Graz BCI) and the international conferences Complenet, Netsci, Complex Networks.
- S. Durrleman acted as a reviewer for Information Processing in Medical Imaging (IPMI) and MIC meets NeurIPS.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- O. Colliot is a member of the Editorial Board of the journal Medical Image Analysis (Elsevier).
- F. De Vico Fallani is a member of the Editorial Board of PLoS One, Brain Topography, IEEE TNSRE.
- S. Epelbaum is member of the editorial board for the Medecine Cognition et Vieillissement Scientific Journal.
- S. Durrleman is member of the editorial board of IEEE Transactions on Medical Imaging (TMI), and Neuron, Behavior and Data Analysis (Scholastica)

10.1.3.2. Reviewer - Reviewing Activities

- O. Colliot acted as a reviewer for Medical Image Analysis, Neuroradiology and Clinical Epidemiology.
- N. Burgos acted as a reviewer for IEEE Transactions on Medical Imaging; Medical Image Analysis; Medical Physics; IEEE Transactions on Computational Imaging; Scientific Reports; Artificial Intelligence in Medicine; Physics in Medicine and Biology; NeuroImage: Clinical; EJNMMI Research; International Journal of Radiation Oncology, Biology, Physics.
- S. Epelbaum acted as a reviewer for Alzheimer's & Dementia, the Journal of Alzheimer's disease, Annals of Neurology and Annals of Clinical and Translational Neurology.
- S. Durrleman acted as a reviewer for Journal of Mathematical Imaging and Vision
- F. De Vico Fallani acted as a reviewer for Brain, PloS Biology, Network Neuroscience, J Neural Engineering, Neuroimage.

10.1.4. Invited Talks

- O. Colliot gave an invited seminar at the University of Southern California (Los Angeles, USA).
- O. Colliot gave an invited seminar at the meeting of the Scientific Council of the Institute of Biology of CNRS.
- O. Colliot gave an invited seminar at CentraleSupelec (Gif-sur-Yvette, France)
- N. Burgos gave an invited seminar at the Université de Tours (Tours, France)
- N. Burgos gave an invited presentation at the MaDICS Symposium (Rennes, France)
- F. De Vico Fallani was invited for a plenary talk at the Institut de neurosciences des systemes INS (Marseille, France)
- F. De Vico Fallani was invited for a plenary talk at the Stem-cell and brain research institute SBRI (Lyon, France)
- F. De Vico Fallani gave an invited seminar at Laboratoire Bordelais de la Recherche en informatique (LABRI), Bordeaux, France
- F. De Vico Fallani gave an invited seminar at the Ecole Polytechnique, Paris, France
- F. De Vico Fallani gave an invited seminar at the Ecole Normale Superieure, Paris, France
- S. Durrleman gave an invited lecture at the Institute for Pure and Applied Mathematics (IPAM), Los Angeles, USA
- S. Durrleman gave an invited lecture at the Pasadena Workshop, Sorbonne Université, Paris
- S. Durrleman gave an invited lecture at the Disease Progression Modeling workshop in Bonn, Germany
- S. Durrleman gave an invited seminar at CMIC, University College Longon, UK
- S. Durrleman gave an invited seminar at Bordeaux University, France
- S. Durrleman gave an invited seminar at Ecole Polytechnique, Paris, France

10.1.5. Scientific Expertise

- O. Colliot is a member of the "Commission des emplois scientifiques" of the Inria Paris Center, in charge of evaluating applications for PhD fellowships, postdoc fellowships and secondments.
- O. Colliot acts as an expert for GENCI (the national facility for high-performance computing).
- O. Colliot was a member of the recruitment committee ("jury d'admission") for the national competition for recruitment of permanent researchers at CNRS.
- S. Durrleman is a member of the Commission de Développement Technologique (CDT) of Inria Paris Center.
- S. Durrleman is director of the ICM Center for Neuroinformatics, and scientific manager of the ICM platform for data management and analytics.
- S. Durrleman serves as secretary of the MICCAI Special Interest Group SHAPE.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: Olivier Colliot coordinates the course "Methods for medical imaging" of the Master 2 in Computer Science of Sorbonne University and teaches 4.5 hours (eqTD).
- Master: F. De Vico Fallani, 3 hours (eqTD), "Methods for medical imaging" of the Master 2 in Computer Science of Sorbonne University.
- Master: Olivier Colliot coordinates the course "Artificial Intelligence" of the Master 2 Bioentrepreneur of Paris-Descartes University and teaches 30 hours (eqTD).
- Master: S. Epelbaum, Master in Neuroscience, 4 hours (eqTD), Sorbonne University
- Master: S. Durrleman, Master Mathématiques, Vision, Apprentissage (MVA), ENS Paris-Saclay (21 hrs cours magistral)
- Engineering school: Olivier Colliot, 3 hours (eqTD), Mines ParisTech
- Medical school: Didier Dormont is the Director of the University Diploma (DIU) "Diagnostic and Therapeutic Neuroradiology", Sorbonne University
- Medical school: Didier Dormont, Courses for Medical Students, Sorbonne University
- Medical school: Didier Dormont organizes and participates in the practical teaching of Neuroradiology for Medical Students in the Department of Diagnostic Neuroradiology of Pitié Salpêtrière University Hospital
- Medical school: Didier Dormont organizes and participates in the practical teaching of Neuroradiology for Radiology Specializing Residents in the Department of Diagnostic Neuroradiology of Pitié Salpêtrière University Hospital
- Medical school: S. Epelbaum gives lectures in Neurology on the topic of degenerative diseases for medical students of Sorbonne University (10 hours/year) and is regional supervisor of the national Inter University Diploma on Alzheimer's disease and Related disorders for Paris since 2015.

10.2.2. Supervision

PhD in progress : Juliana Gonzalez-Astudillo, "Network features for brain-computer interfaces", UPMC, started in 2019, advisor: Fabrizio De Vico Fallani

PhD in progress : Giulia Bassignana, "Identification of driver nodes in biological networks", Inserm, started in 2017, advisors: Fabrizio De Vico Fallani, Olivier Colliot, Violetta Zujovic

PhD in progress : Tiziana Cattai, "Leveraging brain connectivity networks to detect mental states in brain-computer interfaces", Inria, started in 2017, advisor: Fabrizio De Vico Fallani

PhD in progress : Virgilio Kmetzsch, "CMultimodal analysis of neuroimaging and transcriptomic data in genetic fronto-temporal dementia", Sorbonne University, Started in 2019, advisors: Olivier Colliot, Emmanuelle Becker and Olivier Dameron

PhD in progress: Wen Wei, "Learning brain alterations in multiple sclerosis from multimodal neuroimaging data", Université de Nice Sophia-Antipolis, Started in 2016, advisors: N. Ayache, O. Colliot and S. Durrleman

PhD in progress: Alexandre Bône, "Learning methods for the spatiotemporal analysis of longitudinal image data: application to the diagnosis, prognosis and monitoring of Alzheimer's disease", started in 2016, advisors: O. Colliot and S. Durrleman

PhD in progress: Igor Koval, "Construction of disease progression models from multimodal longitudinal data", started in 2016, advisors: S. Allassonnière and S. Durrleman

PhD in progress: Raphael Couronné, "Spatiotemporal analysis of the progression of the Parkinson's Disease informed by multimodal longitudinal data", started in 2018, advisor: S. Durrleman

PhD in progress: Thomas Lartigue, "Mixture Models in Gaussian Graphical Models", started in 2017, advisors: S. Allassonnière and S. Durrleman

PhD in progress: Vianney Debavelaere, "Analysis of distribution of spatiotemporal trajectories in heterogeneous populations", started in 2018, advisors: S. Allassonnière and S. Durrleman

PhD in progress: Johann Faouzi, "Machine learning approaches to predict impulse control disorders in Parkinson's disease", started in 2018, advisors: O. Colliot and J.-C. Corvol

PhD in progress: Simona Bottani, "Machine learning for differential diagnosis of neurodegenerative diseases from multimodal data", started in 2018, advisors: O. Colliot and N. Burgos

PhD in progress: Elina Thibeau–Sutre, "Unsupervised learning from neuroimaging data to identify disease subtypes in Alzheimer's disease and related disorders", started in 2018, advisors: D. Dormont and N. Burgos

PhD in progress: Federica Cacciamani, "Awareness for cognitive decline in the earliest stages of Alzheimer's disease", started in 2018, advisor: S. Epelbaum

PhD in progress: Paul Vernhet, "Learning dynamical systems for disease progression modeling", started in 2019, advisor: S. Durrleman

PhD in progress: Clément Mantoux, "Statistical analysis of graphs", started in 2019, advisors: S. Durrleman and S. Allassonnière

10.2.3. Juries

- Olivier Colliot participated, as referee, to the PhD committee of Killian Hett (University of Bordeaux).
- Olivier Colliot participated, as referee, to the PhD committee of Florian Tilquin (University of Strasbourg).
- Olivier Colliot participated, as thesis director, to the PhD committee of Jorge Samper-Gonzalez (Sorbonne University).
- Olivier Colliot participated, as thesis director, to the PhD committee of Junhao Wen (Sorbonne University).
- Olivier Colliot participated, as thesis director, to the PhD committee of Pascal Lu (Sorbonne University).
- F. De Vico Fallani participated, as referee, to the PhD committee of Melodie Foullien (University of Lyon).
- F. De Vico Fallani participated, as examiner, to the PhD committee of Sebastien Campeon (Sorbonne University).
- S. Epelbaum participated, as thesis director, to the MD committee of Sinead Gaubert (AP-HP).
- S. Durrleman participated, as referee, to the PhD committee of Razwan Marinescu (University College London)

- S. Durrleman participated, as referee, to the PhD committee of Raphaël Sivera (Université Côte d'Azur)
- S. Durrleman participated, as thesis advisor, to the PhD committee of Maxime Louis (Sorbonne Université)
- S. Durrleman participated, as thesis advisor, to the PhD committee of Manon Ansart (Sorbonne Université)

10.3. Popularization

10.3.1. Articles and contents

- Olivier Colliot gave an interview for the popular science magazine "La Recherche".
- Stéphane Epelbaum participated to multiple events dedicated to general audience outreach including: articles in journals (L'Express, AFP, Pourquoi docteur) Radio shows and podcasts (France inter) and TV shows (BFMTV).
- S. Durrleman participated to several events dedicated to general audience outreach including 2 articles in Le Figaro Santé, 2 keynote lectures at AI for Health conference, and Sommet des start-up Challenges, and an article in Médecine, Cerveau et Cognition.

10.3.2. Interventions

- N. Burgos gave a presentation for the Rendez-vous des Jeunes Mathématiciennes (Inria Paris).

<p align="center">**ATHENA Project-Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

- M. Zucchelli is one of the organizer of the summer school on Brain Connectomics at the University of Verona, September 2019.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

- T. Papadopoulo is member of the Program Commitee of GRETSI 2019.
- T. Papadopoulo is member of the Program Commitee of Soph.IA 2019.

9.1.2.2. Reviewer

- M. Clerc serves several international conferences (ISBI, ICASSP, IEEE EMBS, IEEE NER).
- R. Deriche serves several international conferences (ISBI, MICCAI, ISMRM, ...) and international workshops (CD-MRI Miccai, MFCA Miccai...).
- T. Papadopoulo serves several international conferences (GRETSI, ICIP, ISBI, ICASSP, VISAPP).

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- M. Clerc is member of the Editorial Boards of the Journal of Neural Engineering, and of the journal Neurons, Behavior, Data and Theory.
- R. Deriche is member of the Editorial Board of the Journal of Neural Engineering, editorial board member at Springer for the book series entitled Computational Imaging and Vision and member of the Editorial Board of the Medical Image Analysis Journal
- M. Clerc, R. Deriche and T. Papadopoulo serve as Guest Editor for the special issue on Non-invasive brain imaging of the Journal of Neural Engineering.

9.1.3.2. Reviewer - Reviewing Activities

- M. Clerc serves several international journals (Journal of Neural Engineering, NeuroImage, Physics in Medicine and Biology).
- R. Deriche serves several international journals (NeuroImage, IEEE Transactions on Medical Imaging, Magnetic Resonance in Medicine, Journal of Mathematical Imaging and Vision, Medical Image Analysis Journal, ...).
- T. Papadopoulo serves several international journals (Pattern Recognition, NeuroImage, Frontiers in Neuroscience, Brain Topography, Journal of Neural Engneering).
- S. Deslauriers-Gauthier serves several international journals (NeuroImage, IEEE Transactions on Biomedical Engineering, Journal of Neural Engineering).
- M. Zucchelli serves several international journals (NeuroImage, BioMedical Engineering OnLine).

9.1.4. Invited Talks

- M. Clerc gave a talk in front of the French Academy of Sciences on June 21 2019.
- M. Clerc gave a keynote talk at the INCF conference in Warsaw on Sep 2, 2019.

- M. Clerc gave a keynote talk at the ACM Multimedia HealthMedia workshop in Nice on October 21, 2019.
- R. Deriche gave an invited keynote speech at Hassan II Academy of Sciences and Technology, Kingdom of Morocco (Feb. 27, 2019).

9.1.5. Leadership within the Scientific Community

- M. Clerc is vice-president of the CORTICO association https://www.cortico.fr
- M. Clerc is vice-president of the NeuroMod institute of Université Côte d'Azur

9.1.6. Scientific Expertise

- M. Clerc is member of the COERLE and CERNA committees.
- R. Deriche serves several international institutions in reviewing applications : ERC Grants, Swiss National Science Foundation, EPFL, the Netherlands Organisation for Scientific Research (NWO).
- T. Papadopoulo serves several international (Cordis-H2020 for FET-OPEN), national (ANR) and local (NeuroMod in Nice, iSite NExT in Nantes) institutions in reviewing applications.

9.1.7. Research Administration

- M. Clerc was appointed director of the Inria Sophia Antipolis research Center in November 2019.
- M. Clerc was president of the CRCN hiring committee at Inria Bordeaux in 2019.
- M. Clerc was vice-president of the Inria Evaluation committee from September to October 2019.
- R. Deriche is member of the Academic Council of UCA (Université Côte d'Azur).
- R. Deriche is member of the Scientific Council of Academy 2 *Complex Systems*, Université Côte d'Azur and member of the Scientific Council of Olea Medical Company (https://www.olea-medical.com/en).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: T. Papadopoulo, *Inverse problems for brain functional imaging*, 24 ETD, M2, Mathématiques, Vision et Apprentissage, ENS Cachan, France.

M. Clerc teaches Functional Brain Imaging in the MSc Mod4NeuCog of Université Côte d'Azur (30 hours).

M. Clerc gave two lectures in a summer school on Brain Connectomics at the University of Verona, September 2019.

M. Zucchelli gave one lecture and one hands-on session in a summer school on Brain Connectomics at the University of Verona, September 2019.

9.2.2. Supervision

PhD defended on May 7th, 2019: Thinhinane Megherbi, "HARDI & High Order Tensors", Supervisors: Rachid Deriche & L. Boumghar (USTHB, Algiers)

PhD in progress: Abib Alimi, "Diffusion & PLI" started Nov, 1st, 2016, Université Côte d'Azur. Supervisor: Rachid Deriche.

PhD in progress: Matteo Frigo, "Structure & Function" started Nov, 1st, 2017, Université Côte d'Azur. Supervisor: Rachid Deriche.

PhD in progress: Isa Costantini, "Brain Connectomics" started Oct. 1st, 2016, Université Côte d'Azur.. Supervisor: Rachid Deriche.

PhD defended on Dec. 19th, 2019: Kostiantyn Maksymenko, "Inverse problem in EEG/MEG/SSEG: towards a better consideration of anatomo-functional constraints", Université Côte d'Azur, Supervisors: Théodore Papadopoulo and Maureen Clerc.

PhD in progress: Federica Turi, "User-adapted Brain Computer Interaction", Université Côte d'Azur, started October 2016. Supervisor: Maureen Clerc.

PhD in progress: Sara Sedlar, "Reconstruction and analysis of dynamical functional networks from EEG, MEG and dMRI measurements", Université Côte d'Azur, started October 2018. Supervisors: Théodore Papadopoulo and Maureen Clerc.

PhD in progress: Ivana Kojcic, "Estimation of cortical activity and of the structure–function link using EEG and dMRI", Université Côte d'Azur, started October 2018. Supervisors: Théodore Papadopoulo and Samuel Deslauriers-Gauthier.

PhD in progress: Côme Le Breton, "Non invasive analysis of epileptogenetic networks and their response to neurofeedback", started June 2019. Supervisors: Maureen Clerc and Théodore Papadopoulo.

PhD in progress: Joan Belo, "Electroencephalography analysis of auditory attention when listening to music", started June 2019. Supervisors: Maureen Clerc and Daniele Schön.

9.2.3. *Juries*

- M. Clerc participated in the PhD Jury of Maria-Carla Piastra at University of Genova in March 2019.
- M. Clerc participated in the PhD Jury of Jelena Mladenovic at University of Bordeaux in September 2019.
- R. Deriche participated in the PhD Jury of L. El Gueddari at University Paris Saclay on Dec. 13th, 2019.
- R. Deriche participated in the PhD Jury of A. Mendoza Quispe at Ecole Normale Supérieure Paris-Saclay on Feb. 5th, 2019.
- R. Deriche participated in the PhD Jury of T. Megherbi at USTHB (Algiers) on May 7th, 2019.
- R. Deriche participated as a reviewer in the PhD Jury of M. Kchaou at ENIT (Tunis) defended on July, 2019.
- T. Papadopoulo participated as a reviewer in the PhD Jury of L. Uro at Sorbonne University Paris 6 on Nov. 25th, 2019.
- T. Papadopoulo participated as a reviewer in the HDR Jury of S. Bonnet at CEA Clinatec, Grenoble on Dec. 2nd, 2019.
- T. Papadopoulo and M. Clerc participated in the PhD Jury of K. Maksymenko at Université Côte d'Azur on Dec. 19th, 2019.

9.3. Popularization

- Demonstration of the P300 speller and of the subject adapted dry EEG cap to the local and national instances, M. Clerc, T. Papadopoulo, F. Turi, S. Guebba.
- Participation to the Cybathlon BCI Series, Graz. September 2019 [36].

9.3.1. *Articles and contents*

- An article mentioned the BCI projects of Athena in a special issue from magazine Le Point https://www.lepoint.fr/sante/connecter-son-cerveau-a-un-ordinateur-pour-quoi-faire-18-03-2019-2301895_40.php

9.3.2. *Interventions*

- National events: Brain Awareness Week, two wide audience talks in Biot, Mouans Sartoux, and demonstration of Brain-Computer interfaces, M. Clerc, T. Papadopoulo.

<p align="center" style="color:red">BEAGLE Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Eric Tannier was the organizing committee chair of the Inria scientific days, July 2019.

9.1.1.2. Member of the Organizing Committees

- Guillaume Beslon and Anton Crombach, members of the organizing committee of MMEE 2019 (Mathematical Modeling in Ecology and Evolution, Lyon, July 2019)
- Guillaume Beslon : member of the organizing committee of the EvoLyon Day (Lyon, November 2019)
- Guillaume Beslon : member of the organizing committee of BDA 2019 (Bases de Données Avancées, Lyon, October 2019)
- Anton Crombach was part of the organizing and scientific committees of the winter course "Advanced Lectures in Computational Systems Biology" in Aussois.
- Hugues Berry was a member of the Local Organising Committee for conference MedInfo 2019 (https://www.medinfo-lyon.org/en/)
- Eric Tannier is a member of the organizing committee of "SEMOVI", séminaire de modélisation du vivant, a local scientifica animation in systems biology.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Eric Tannier was the program committee chair of the Inria scientific days, July 2019.

9.1.2.2. Member of the Conference Program Committees

- Anton Crombach, involved in the selection of talks and posters for MMEE (Mathematical models in ecology and evolution, Lyon, July)
- Christophe Rigotti, member of the program committee of the 19th IEEE International Conference on Data Mining (ICDM).
- Christophe Rigotti, member of the program committee of the 34rd ACM Symposium On Applied Computing (SAC).
- Guillaume Beslon and Jonathan Rouzaud-Cornabas, members of the program committee of ALife 2019 (2019 Conference on Artificial Life. Newcastle. United Kingdom)
- Eric Tannier, member of the program committee of Jobim 2020
- Eric Tannier, member of the program committee of RECOMB Comparative Genomics 2019
- Eric Tannier, member of the program committee of ISBM/ECCB 2019

9.1.2.3. Reviewer

- Eric Tannier reviewed for RECOMB 2020

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Hugues Berry is Associate Editor for PLoS Computational Biology
- Eric Tannier is a guest editor for the epijournal DMTCS, and edited a special issue in 2019

- Eric Tannier is an editor of "Peer Community in Evolutionary Biology"
- Eric Tannier is a founding editor of "Peer Community in Mathematical and Computational Biology"

9.1.3.2. Reviewer - Reviewing Activities
- Bioinformatics, Journal of Experimental Zoology Part B...

9.1.4. Invited Talks

- Carole Knibbe, 2019 Gordon Conference on "Organismal, Cellular, Molecular and Theoretical Approaches to Understanding Evolution", Easton, MA, USA, June 9-14 2019.
- Anton Crombach, lab seminar at LBMC
- Anton Crombach, lab seminar at LBBE
- Anton Crombach, invited speaker at the EvoLyon conference in november 2019
- Hugues Berry, Artificial Intelligence and Health: the ambition of the French Plan, Aviesan Meeting, Brussels Belgium, Dec. 2019
- Hugues Berry, An introduction to the theoretical models for passive molecule movements in living cells, Action Nationale de Formation du CNRS, Measurement of Molecular Dynamics in Living Cells, Lille, France, Oct. 2019
- Hugues Berry, Searching for deterministic chaos in biological data,Dynamical Systems and Applications to Biology, CIMPA School, Dhaka, Bangladesh, June 2019
- Hugues Berry, Anomalous diffusion in living cells : bridging the gap between experiments and models through collaborative challenges, Random Walks and Intracellular Transport, School of Mathematics, University of Manchester, Manchester, UK, April 2019
- Hugues Berry, Investigating the effect of the nanoscale architecture of astrocytic processes on the propagation of calcium signals, Tampere University of Technology, Tampere, Finland, April 2019
- Hugues Berry, Inria research at the forefront of digital sciences for medicine, 2019 French-American Innovation Day (FAID2019), Houston, Texas, USA, march 2019
- Carole Knibbe, Eric Tannier, Which social and environmental responsibility for researchers, lab seminar at LBMC
- Eric Tannier, open science as an institutional response to the editorial crisis in research, "open science day" of the research biology federation, Lyon.
- Guillaume Beslon, invited talk at UGA (séminaire "Translation et Innovation en Médecine et Complexité") in November 2019
- Guillaume Beslon, invited talk at the I4ID 2019 conference (Immunotherapies & Innovations for Infectious Diseases Congress, Lyon, December 2019)

9.1.5. Leadership within the Scientific Community

- Anton Crombach is the lead editor of book "Evolutionary Systems Biology, 2nd edition" (ongoing work).
- Hugues Berry organised the 1st Singapore-France Joint Workshop on AI in Health, in association with the international conference MedInfo (https://medinfo-lyon.org/en/), Lyon, France, August 27-29, 2019.
- Hugues Berry co-organized the INSERM Workshop "Intracellular dynamics of molecules: analysis and models" (https://research.pasteur.fr/en/event/intracellular-dynamics-of-molecules-analysis-and-models/). The workshop combined a 3-day critical assessment phase (in Bordeaux, France, June 24-26 2019) and a 3-day technical worskshop (in Lyon, France, July 1-3 2019). This workshop addressed a biologist audience and covered the main experimental methods to quantify the mobility and trajectories of biomolecules in living cells, with an emphasis on the quantification methods for individual trajectories and the interest of computer simulations for analysis and interpretation.

- Carole Knibbe and Guillaume Beslon (together with Dusan Misevic from the Center for Research and Interdisciplinarity in Paris) edited a special issue of the Artificial Life journal (vol25 issue 4, nov 2019), with extended versions of the best papers of ECAL 2017. Link : https://www.mitpressjournals.org/doi/abs/10.1162/artl_a_00298?af=R

9.1.6. Scientific Expertise

- Hugues Berry, Reviewer for the Fond National de la Recherche Scientifique (FNRS, Belgium) for the call "FRQ-FNRS Québec - Communauté française de Belgique"

9.1.7. Research Administration

- Christophe Rigotti, elected member of Insa Scientific board (Conseil scientifique)
- Eric Tannier, elected member of the Inria Administration Council
- Eric Tannier, member of the open science committee of the French Ministry of research
- Eric Tannier, member of the ethics platform of the university of Lyon
- Eric Tannier, member of the "Sciences Environments Societies" workgroup of Inria
- Eric Tannier, member of the Environmental responsibility workgroup of LBBE
- Eric Tannier, scientific responsible of the "cours colloques" committee of Inria
- Eric Tannier, member of the scientific committee of the science shop, univ Lyon
- Hugues Berry, Deputy scientific director of Inria for digital biology and health
- Guillaume Beslon, member of the ANR CE45 committee (Mathématiques et sciences du numérique pour la biologie et la santé)
- Guillaume Beslon, member of the IRD CSS5 committee (Science des données et des modèles)

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

License: Jonathan Rouzaud-Cornabas, Object-Oriented Programming, 120h, L3, Computer Science Department, INSA de Lyon

Master: Jonathan Rouzaud-Cornabas, System Programming, 60h, M1, Computer Science Department, INSA de Lyon

Master: Jonathan Rouzaud-Cornabas, Network Programming, 20h, M1, Computer Science Department, INSA de Lyon

Master: Jonathan Rouzaud-Cornabas, High Performance Computing, 60h, M2, Computer Science Department, INSA de Lyon

Master: Jonathan Rouzaud-Cornabas, High Performance Computing, 12h, M2, Bioinformatics and Modeling Department, INSA de Lyon

Licence: C. Knibbe, Fundamentals of algorithmics and programming, 80 heqTD, L3, Bioinformatics and Modelling program of INSA-Lyon

Licence: C. Knibbe, Architecture of computer systems, 19 heqTD, L3, Bioinformatics and Modelling program of INSA-Lyon

Licence: C. Knibbe, Software development, 32 heqTD, L3, Bioinformatics and Modelling program of INSA-Lyon

Licence: C. Knibbe, HTML/CSS, 4 heqTD, L3, Bioinformatics and Modelling program of INSA-Lyon

Master: C. Knibbe, Careers in bioinformatics and modelling, 20 heqTD, M1, Bioinformatics and Modelling program of INSA-Lyon

Licence: Christophe Rigotti, Object-Oriented Programming and Graphical User Interfaces, 86h, L2, Department 1er cycle of INSA-Lyon.

Licence: Christophe Rigotti, Simulation of Chemical Reactions, 26h, L2, Department 1er cycle of INSA-Lyon.

Licence: Christophe Rigotti, Numerical Modelling for Engineering, 60h, L2, Department 1er cycle of INSA-Lyon.

Master: Christophe Rigotti, Data Mining, 25h, M1, Bioinformatics and Modeling Department of INSA-Lyon.

Master: Eric Tannier, Comparative Genomics, 8h, M1, Bioinformatics and Modeling Department of INSA-Lyon.

Master: Eric Tannier, String algorithmics, 12h, M1, Bioinformatics and Modeling Department of INSA-Lyon.

Master: Eric Tannier, String algorithmics, 12h, M1, Bioinformatics UCBL.

Master: Eric Tannier, Research Ethics, 6h, M2, Bioinformatics UCBL

Doctorat: Eric Tannier, Environmental responsibility of research activities, NGS formation, Lyon

Doctorat: Eric Tannier, Research Ethics, 12h, all specialities, Université de Lyon

Doctorat: Eric Tannier, Research Ethics, 6h, Inria PhD students

Master: Audey Denizot, 64h de cours en enzymologie (M1, INSA Lyon) et biologie cellulaire (M2, ENS Lyon).

E-learning

MOOC: Eric Tannier, Research Ethics, FUN, Ph-D candidates, 3000 registered participants

9.2.2. Supervision

PhD in progress: Julie Etienne, "Modélisation et simulation du flux de triglycérides alimentaires, de l'absorption entérocytaire à la sécrétion des chylomicrons", INSA-Lyon, co-supervised by Carole Knibbe and Marie-Caroline michalski (CarMeN laboratory), started in October 2019.

M2 : Julie Etienne, "Analysing and modelling the traffic of triglycerides through enterocytes", co-supervised by Carole Knibbe (80

M2 : Ella Beaumann, "Modélisation compartimentale de cinétiques postprandiales cliniques", co-supervised by Carole Knibbe (70

M2: Hugues Berry and Christophe Rigotti where co-supervisors of the M2 internship of Tymofii Prokopenko (co-supervision with Olivier Pascual of team SynatAc INSERM/CNRS) from 28/01/2019 to 14/06/2019. Title: "Classification and clustering of activity data of microglial cells".

M2 Sujin Hyun, 1 feb 2019 to 31 jul 2019 (6 months), title "Re-assessing the link between splicing and mRNA quality control" (supervised by A Crombach)

PhD: Audrey Denizot, "Simulation de la signalisation calcique dans les prolongements fins astrocytaires", INSA Lyon, 08 Nov. 2019 (co-supervision H. Soula and H. Berry)

PhD: Hugues Berry participated to the PhD Advisory Committee of Barbara Genocchi (BioMediTech, Tampere University of Technology, Finland)

PhD: Eric Tannier participated to the PhD Advisory Committee of Raphael Forquet (UCBLyon)

PhD in progress: Alexandre Laverré, "influence croisée de l'organisation spatiale et des mutations structurales dans les génomes", encadré par Anamaria Necsulea et Eric Tannier, début en septembre 2018

PhD in progress: Théo Tricou, "Détection d'espèces éteintes avec les transferts horizontaux", encadré par Damien de Vienne et Eric Tannier, début en septembre 2018

PhD in progress: Hugo Menet, "Phylogénie multi-échelles des holobiontes", encadré par Eric Tannier et Vincent Daubin, début en septembre 2019

M2: Hugo Menet, "Phylogénie multi-échelles des holobiontes", encadrée par Eric Tannier, 2019

9.2.3. Juries

- HDR: Jérémie Roux,"Integrative single-cell approaches to understanding cancer drug response heterogeneity in tumor cell dynamics" Université Côte d'Azur, Nice, France, September 2019 (Hugues Berry, reviewer)

- HDR: Jean-Baptiste Masson, "Probabilistic induction and physics modelling to probe biological decision making In situ", Sorbonne University, Paris, France, May 2019 (Hugues Berry, reviewer)

- HDR: Celine Scornavacca, "Phylogenetic reconciliations and networks", Univ Montpellier (Eric Tannier, examinateur)

- PhD: Audrey Denizot (Ph-D, INSA-Lyon, October 2019) (Guillaume Beslon was a member of the PhD Committee)

- PhD: Andreas Odorico (Ph-D, Gif-sur-Yvette, December 2019) Guillaume Beslon was reviewer

- PhD: Adrien Legrand (University of Picardie Jules Verne, Amiens, November 2019) Christophe Rigotti was reviewer

9.3. Popularization

9.3.1. Articles and contents

- Hugues Berry participated in popularization activities with the edition of a book, written in French, on the relationships between sex (i.e. a biology concept) and Gender (a sociology approach) (Abou, B. and Berry, H., eds., (2019). Sexe et Genre: de la Biologie a la Sociologie. Editions Materiologiques, Paris, https://materiologiques.com/sciences-philosophie-2275-9948/282-sexe-et-genre-de-la-biologie-a-la-sociologie.html) In recent years, debates about sex and gender concepts between biology and the humanities and social sciences have become more intense, both for scientific reasons and for their societal impacts. Many biologists reject the questioning made by researchers in humanities and social sciences, of what biology considers fundamental, such as sex binarity or sex differences. Humanities and social scientists, on the other hand, often see biology as an academic and institutional source of naturalistic arguments used to oppose gender studies. They denounce biases in the interpretation of biologists as resulting, precisely, from gender-related biases. However, scientific exchanges at the interface between biology and the humanities and social sciences are undoubtedly necessary to overcome these antagonisms. The objective of this book is to implement a dialogue between the two fields, trying to overcome misunderstandings and misconceptions that have gone on for long. The book consists in 12 chapters stemming from biologists and sociologists, organized so as to try and foster dialogue between both communities. The target readership of the book is composed of non specialist readers (in particular non biologists nor sociologists) with a pre-existing interest on gender issues and their relations to biology. That is why the book was written in French and includes chapters intended to newcomers in the field (e.g. "The determination of sex in the human species and the rest of life" or "Why Gender?") to more advanced viewpoints ("What we learn from transidentities"). The objective of the publisher was to publish a reference book in French on the relations between sex and gender.

- "Le mouvement est devenu massif", an interview of Hugues Berry to the French journal L'Usine Nouvelle, Special Edition "A year of simulation", number 3608, April 25, 2019. https://www.usinenouvelle.com/editorial/le-mouvement-est-devenu-massif.N834680

- Eric Tannier is a co-author of "Quand les branches de l'arbre du vivant s'entremêlent", in *Pour la science*, 2019.

9.3.2. Education

- We have an ongoing collaboration with the Grenoble Rectorat. The aim is to use our computational models to train school professor to evolutionary concepts.

9.3.3. Interventions

- Audrey Denizot participated to activities in the mediation association DéMesures:
  - "Cosmograff" project. This project aims to present the solar system and its scales to the general public, in collaboration with the Musée des Confluences and the collective of street artists Superposition https://bit.ly/35gtYpI. Creation of audio guides in French and English for reuse at the 2019 EWASS international astronomy conference. https://bit.ly/2rQlB5y
  - "ArtScience" project, which aims to present the work of scientists to artists. This project culminated in an artistic exhibition at the ENS Lyon, from April to July 2019, in collaboration with the Taverne Gutenberg https://bit.ly/2OldNR3. Creation of a series of photographs presenting the links between science and art that emerged from this project https://bit.ly/2XqjaCz.
- Eric Tannier co-organized a citizen science event at the Théâtre Nouvelle Génération, Vaise, december 2019
- Eric Tannier organizes a workshop on environmental responibility of researchers in january 2020
- Eric Tannier participated to a "pint of science" evening on the social and environmental responsibility of researchers, May 20, 2019

9.3.4. Internal action

- Eric Tannier and Carole Knibbe gave a lecture on environmental responsibility at the Inria Bio days, 2019
- Eric Tannier gave a training to PhD students on research ethics, 6h, Inria Grenoble Rhône-Alpes, January 2019

9.3.5. Creation of media or tools for science outreach

- We developed the GreenMice game, a small video-game designed to teach the basis of evolutionary biology to young children

<p align="center">**BIGS Project-Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- Sandie Ferrigno, Anne Gégout-Petit, Clémence Karmann, Aurélie Muller-Gueudin, Nassim Sahki,Bruno Scherrer and Sophie Wantz-Mézières were very active members of the organizing committee of the "Journées de Statistique de la SFdS" at FST in Nancy, June 2019.
- Anne Gégout-Petit, Aurélie Muller-Gueudin, and Pierre Vallois were in the organizing committee of the workshop "Modélisation de l'hétérogénéité tumorale et thérapies ciblées" at FST in Nancy, September 2019.
- Sophie Wantz-Mézières was part of the organizing committee of the national workshop of the "Fédération Charles Hermite": "Sécurité et confiance dans les échanges des données de santé", at the "Ecole de Chirugie" in Nancy, November 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

A. Gégout-Petit was ETC program coordinator of the European Meeting of Statisticians, Palermo, July 2019.

10.1.2.2. Member of the Conference Program Committees

A. Gégout-Petit was part of the program committee of the CFIES (Colloque francophone international sur l'enseignement de la statistique), Strasbourg, Septembre 2019.

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

All BIGS members are regular reviewers for journals in probability, statistics and machine learning: Bernoulli, Scandinavian Journal of statistics, Stochastics, Journal of Statistical Planning Inference, Journal of theoretical Biology, IEEE Trans. Biomedical Eng., Theoretical Biology and Medical Modelling, Royal Society of Chemistry, Signal Processing: Image Communication, Mathematical Biosciences, LIDA, Annals of Applied Probability, Annals of Operations Research and Journal of Machine Learning Research, as well as conferences such as ICML, World IFAC Congress, FOSBE, ALCOSP...

10.1.4. Invited Talks

- Talk "Agrégation de méthodes statistiques pour la sélection de variables corrélées et en grande dimension". Séminaire AgroParisTech, Paris, May 2019, Aurélie Muller-Gueudin.
- Talk "Modélisation de réseaux de régulation de gènes par processus déterministes par morceaux". Journée de la Fédération Charles Hermite, Nancy, June 2019, Aurélie Muller-Gueudin.

10.1.5. Research Administration

Anne Gégout-Petit is member of "Bureau du comité des projets", centre Inria Nancy Grand-Est.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

B. Scherrer excepted, BIGS members have teaching obligations at "Université Lorraine" and are teaching at least 192 hours each year. They teach probability and statistics at different levels (Licence, Master, Engineering school). Many of them have pedagogical responsibilities.

- A. Gégout-Petit : Head of the Master 2 "Ingénierie Mathématique et Outils Informatiques (Mathematical Engineering and Computer Tools)", Université de Lorraine

- A. Gégout-Petit created and is now in charge of cursus CMI in applied mathematics for Lorraine University

- T. Bastogne is in charge of the spécialité Systèmes & TIC du master Ingénierie de Systèmes Complexes

- T. Bastogne is in charge of professional master: CIIBLE (Cybernétique, Instrumentation, Image en Biologie et medecinE) en M2 with Medicine Faculty of Université de Lorraine

- T. Bastogne is in charge research master "Biosanté Numérique" with engineering school "Telecom Nancy"

- Master: S. Ferrigno, Experimental designs, 4.5h, M1, fourth year of EEIGM, Université de Lorraine, France

- Master: S. Ferrigno, Data analyzing and mining, 63h, M2, third year of Ecole des Mines, Université de Lorraine, France

- Master: S.Ferrigno, Modeling and forecasting, 43h, M1, second year of Ecole des Mines, Université de Lorraine, France

- Master: S.Ferrigno, Training projects, 18h, M1/M2, second and third year of Ecole des Mines, Université de Lorraine, France

- Master: A. Muller-Gueudin, Probability and Statistics, 160h, second year of ENSEM and ENSAIA, University of Lorraine, France.

- Master: A. Muller-Gueudin, Scientific calculation with Matlab, 20h, second year of ENSAIA, University of Lorraine, France.

- Master: A.Gégout-Petit, Statistics, modeling, 15h, future teacher, Université de Lorraine, France

- Master: A.Gégout-Petit, Statistics, modeling, data analysis, 80h, master in applied mathematics, Université de Lorraine, France

- Licence: S. Wantz-Mézières, Applied mathematics for management, financial mathematics, Probability and Statistics, 160h, I.U.T. (L1/L2/L3)

- Licence: S. Wantz-Mézières, Probability, 100h, first year in Telecom Nancy engineering school (initial and apprenticeship cursus)

- Licence: A. Muller-Gueudin, Statistics, 60h, first year of ENSAIA, University of Lorraine, France.

- Licence: S. Ferrigno, Descriptive and inferential statistics, 60h, L2, second year of EEIGM, Université de Lorraine, France

- Licence: S. Ferrigno, Statistical modeling, 60h, L2, second year of EEIGM, Université de Lorraine, France

- Licence: S. Ferrigno, Mathematical and computational tools, 20h, L3, third year of EEIGM, Université de Lorraine, France

- Licence: S. Ferrigno, Training projects, 20h, L1/L3, first, second and third year of EEIGM, Université de Lorraine, France

10.2.2. Supervision

- PhD : Clémence Karmann, "Network inference for zero-inflated models", Grant : Inria-Cordis. Advisors: A. Gégout-Petit, A. Muller-Gueudin, Université de Lorraine, defended on November 25, 2019.
- PhD : Florine Greciet, "Modèles markoviens déterministes par morceaux cachés pour la propagation de fissures", grant CIFRE SAFRAN AIRCRAFT ENGINES, Advisors : R. Azaïs, A. Gégout-Petit, Université de Lorraine, defense on January, 2020.
- PhD : Kévin Duarte, "Aide à la décision médicale et télémédecine dans le suivi de l'insuffisance cardiaque", Advisors : J.-M. Monnez and E. Albuisson.
- PhD : Pauline Guyot, "Modélisation et Simulation de l'Electrocardiogramme d'un Patient Numérique", Grant : CIFRE-Cybernano. Advisors: T. Bastogne, E. H. Djermoune.
- PhD: Nassim Shaki, "Détection de rupture dans des signaux multivariés pour la prédiction d'événement redouté à partir de paramètres physiologiques recueillis par capteurs connectés après greffe pulmonaire", grant Inria-Cordis. Advisors: A. Gégout-Petit, S. Mézières, M. d'Ortho.
- Benoît Lalloué, contract research engineer for two years, RHU Fight RF, supervised by Jean-Marie Monnez.
- Postdoc: Lionel Lenôtre, Telomer Modelling, grant LUE GEENAGE. Advisors: A. Gégout-Petit, D. Villemonais.
- Postdoc: Emma Horton, Telomer Modelling, grant LUE GEENAGE. Advisors: A. Gégout-Petit, D. Villemonais.
- Master: all BIGS members regularly supervise project and internship of master IMOI students.
- Engineering school: all BIGS members regularly supervise project of "Ecole des Mines ", ENSEM or EEIGM students.

10.2.3. Juries

- Anne Gégout-Petit participated to the jury of the Phd defense of Edouard Fournier, Paul Sabatier University, Toulouse, October 8th
- Anne Gégout-Petit participated to the jury of the HDR defense of Denis Villemonais, Lorraine Université, November 18th
- Anne Gégout-Petit was reviewer and participated to the jury of the Phd defense of Candy Abboud, INRA d'Avignon, Université d'Aix-MArseille, December 11th.
- Anne Gégout-Petit participated to the jury of the HDR defense of Adrien Coulet, Lorraine Université, December 16th.
- Anne Gégout-Petit is member of the "Jury du prix de thèse AMIES".

10.3. Popularization

10.3.1. Interventions

- Anne Gégout-Petit participated in a round table on Artificial Intelligence and Health as part of "La fête de la science" 2019
- Anne Gégout-Petit participated at the "Brunch Données de santé et thermalisme" Janvier 2019
- Sandie Ferrigno: Advisor of a group of students (EEIGM), "La main à la Pâte" project, elementary schools, Nancy, January-June 2019
- Sandie Ferrigno: Advisor of a group of students (EEIGM), "Energies renouvelables", "La main à la Pâte" project, Institut médico-éducatif (IME), Commercy, October 2019-January 2020
- Sandie Ferrigno: Advisor of a group of students (EEIGM), "L'Astronomie" Cgénial project, Collège Paul Verlaine, Malzéville, November 2019-February 2020.
- Sandie Ferrigno: Advisor of a group of students (EEIGM), "Le Chocolat" Cgénial project, Collège de la Craffe, Nancy, November 2019-January 2020.
- Sophie Wantz-Mézières was part of the organization of a thematic and multidisciplinary week "Neurosciences, neuro-oncologie et numérique", for students from Telecom-Nancy and Faculté de Médecine de Nancy, May 2019.

BIOCORE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

O. Bernard was the Co-Chair of the Dycops-CAB conference (CAB 2019 Florianópolis, Brazil, 23rd-26th April).

O. Bernard was the head of the academic scientific committee for the AlgaeEurope conference (Paris, France, 3rd-5th December).

10.1.1.2. Special sessions

M. Chaves together with Laetitia Giraldi (from team McTao, Inria) organized an invited session at the Conf. Decision and Control (Nice, France).

J.-L. Gouzé organized an invited session about control and biology at the FGS Conference (Nice, France).

10.1.1.3. Member of the Organizing Committees

O. Bernard was in the organizing committee of the workshop "Growing microalgae for aquaculture in a Nordic climate : opportunities and challenges" (Trondheim, Norway, 28th-29th May).

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

O. Bernard is in the technical committee of the Computer Applied to Biotechnology (CAB) conferences, of the conference Foundations of Systems Biology in Engineering (FOSBE) and of the Algae Europe conference.

O. Bernard is area chair (Biosystems and Bioprocesses) for the IFAC World Conference (Berlin, Germany, 12nd-17th July).

M. Chaves was on the PC of the following conferences: JOBIM (Nantes, France), FOSBE (Valencia, Spain) , and CSBio (Nice, France).

J.-L. Gouzé is a member of the program committee for the International Conference on Positive Systems, and CSBio (Nice, France).

10.1.2.2. Reviewer

All BIOCORE members have been reviewers for the major 2019 conferences in our field: CDC, ECC, IFAC Congress, FOSBE,...

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

M. Chaves is an Associated Editor of SIAM Journal on Applied Dynamical Systems (SIADS), since January 2015.

S. Touzeau is an Academic Editor of PLOS ONE since August 2018.

10.1.3.2. Reviewer - Reviewing Activities

All BIOCORE members have been reviewers for the major journals in our field: Automatica, IEEE Transactions on Automatic Control, Journal of Mathematical Biology, Mathematical Biosciences, Algal Research, New Phytologist,...

10.1.4. Invited Talks

O. Bernard was invited to give a conference on microalgae at Ecole Centrale de Paris ("Biotechnological challenge") "Use of microorganisms for biofuel production" (January, 16th, 2018).

O. Bernard was invited to give a conference at the workshop MADEV19, ("Mathématiques Appliquées à des questions de DEVeloppement ") (Dakar, November, 25th-27th).

O. Bernard was invited at the workshop "Control engineering concepts in systems- and synthetic biology" (Stavanger, Norway 20th-21st May).

P. Bernhard gave invited presentations at the "Rencontre interdisciplinaire: Théorie des jeux: concept mathématique et applications en économie", University of Nice (November 2019).

M. Chaves gave a seminar on dynamics and feedback architectures in gene-metabolic pathways at the center for Modeling, Simulation and Interactions (MSI), Université Côte d'Azur (June 2019).

M. Chaves was invited to give a presentation at the Minisymposium on Modeling signal transduction/gene regulatory networks organized by T. Gedeon at the 9th International Congress on Industrial and Applied Mathematics (Valencia, Spain, July 2019).

M. Chaves was invited to give a presentation at the Symposium on Modeling approaches for cancer therapy, at Université de Lille (PHLAM) (September 2019).

Jean-Luc Gouzé was invited to give presentations at Autrans (IBIS seminar), Ifremer Nantes, Inria Paris (Kaist seminar with South-Korea).

S. Touzeau was invited to present works of the EPITAG associate team at the AgriNumA'2019 Symposium on "Digital agriculture in Africa", Dakar, Senegal (April 30th, 2019) [43].

10.1.5. Scientific Expertise

O. Bernard is a member of the scientific committee of the companies Inalve and BioEnTech.

M. Chaves was a member of the Selection Committee for a Maitre de Conference position at the Univ. Rennes.

J.-L. Gouzé was in several evaluation committees or juries: FWO, NWO, FNRS...

10.1.6. Research Administration

O. Bernard represents Inria at the ANCRE (Alliance Nationale de Coordination de la Recherche pour l'Energie).

O. Bernard is a member of the ADT (Technological Development Actions) commission at Inria.

M. Chaves is a member of the COST-GTRI (working group on International Relations at Inria's council for scientific and technological orientation). The group is charged with evaluating Inria's Associated Teams.

M. Chaves and W. Djema are members of the CLDD of Inria Sophia Antipolis (local committee for sustainable development).

M. Chaves is a member of the Education Board of the Master "Quantitative and Computational Sciences for Biomedical data", Université Côte d'Azur.

J.-L. Gouzé is in the Inria committee supervising the doctoral theses, and a member of the scientific committee of Labex SIGNALIFE of the University of Nice-Sophia-Antipolis, and of COREBIO PACA. He is in the scientific committee of Académie 4 of UCA-Jedi. He is a member of the board of the SFBT (French Speaking Society for Theoretical Biology).

F. Grognard is a member of the NICE committee, which allocates post-doctoral grants and fundings for visiting scientists at Inria Sophia Antipolis.

Since 2015, F. Grognard is a member of the MBIA CSS (Specialised Scientific Commission), in charge of the research scientists evaluation at INRA. He is a member of the steering committee of Academy 3, Space, Environment, Risk & Resilience of UCA-JEDI. He is co-responsible of the development of the MSc Risk of UCA-JEDI.

L. Mailleret is the head of the M2P2 team (Models and Methods for Plant Protection) of ISA. He's in the Unit and scientific council of Institut Sophia Agrobiotech.

S. Touzeau is a member of the steering committee of the INRA metaprogramme on "Plant Health", a follow-up of the SMaCH metaprogramme (since 2016).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: F. Grognard (45.5h ETD) and L. Mailleret (26h ETD), "Equations différentielles ordinaires et systèmes dynamiques", L3, 1st year Engineering in Modeling and Applied Mathematics, Polytech Nice Sophia, Université Nice Sophia Antipolis, France.

Master: O. Bernard (4.5h ETD), "Bioenergy from microalgae", M2, Master International Energy Management : alternatives pour l'énergie du futur, Ecole Nationale Supérieure des Mines de Paris, France.

Master: O. Bernard (18h ETD), "Modeling biotechnological processes", M2, Ecole CentraleSupelec, Saclay, France.

Master: O. Bernard (18h ETD), "Automatic Control applied to biotechnological processes", M2, Ecole CentraleSupelec, Saclay, France.

Master : J.-L. Gouzé (18h ETD), M. Chaves (12h ETD), "Modeling biological networks by ordinary differential equations", M1, 2nd year Engineering in Génie biologique, Polytech Nice Sophia, Université Nice Sophia Antipolis, France.

Master: F. Grognard (21h ETD) and L. Mailleret (21h ETD), "Bio-Mathématiques", M1, 2nd year Engineering in Modeling and Applied Mathematics, Polytech Nice Sophia, Université Nice Sophia Antipolis, France.

Master: F. Grognard (45h ETD), "Elements of mathematical modelling", M1, MSc in Environmental Hazards and Risks Management, Université Côte d'Azur, France.

Master: S. Touzeau (27h ETD), "Analyse de données", M1, 2nd year Engineering in Génie biologique, Polytech Nice Sophia, Université Nice Sophia Antipolis, France.

10.2.2. Supervision

PhD: M. Haond. "Impact de la capacité de charge de l'environnement sur les dynamiques d'expansions de métapopulations. Théories et applications à un système expérimental hôte-parasitoïde", 2015-2019, Université Côte d'Azur. Supervisors: E. Vercken (UMR ISA), L. Mailleret and L. Roques (UR BioSP). Defended on 03/26/2019.

PhD: C. Martinez von Dossow. "Modélisation, analyse et contrôle de la croissance microalgale en cultures à haute densité", 13 May 2019, Sorbonne Université. Supervisors: O. Bernard, F. Mairet and A. Sciandra.

PhD: L. Gomes Pereira "Modeling cell response heterogeneity to pro-apoptotic ligands", 26 November 2019, Univ. Côte d'Azur. Supervisors: M. Chaves and J. Roux (IRCAN, Nice).

PhD in progress: I. Tankam Chedjou. "Modeling, analysis and control of plantain plant-parasitic nematodes", University of Yaoundé I, Cameroon, since December 2015. Supervisors: J.-J. Tewa (Univ. Yaoundé I), F. Grognard, L. Mailleret, S. Touzeau.

PhD in progress: L. Chambon. "Control of models of genetic regulatory networks", since October 2016, Université Côte d'Azur. Supervisor J.-L. Gouzé.

PhD in progress: S. Nilusmas. "Gestion durable des nématodes à galles en cultures maraîchères : modélisation et optimisation du déploiement des résistances et des pratiques agronomiques", Université Côte d'Azur, since December 2016. Supervisors: S. Touzeau, C. Caporalino (ISA), V. Calcagno (ISA) and L. Mailleret.

PhD in progress: Y. Fotso Fotso. "Modeling, analysis and control of coffee berry borers", University of Dschang, Cameroon, since January 2017. Supervisors: B. Tsanou (Univ. Dschang), S. Bowong (Univ. Douala), F. Grognard, S. Touzeau.

PhD in progress: M. Gachelin. "Selection pressure to improve lipid productivity of microalgae", since March 2017, UPMC. Supervisors: O. Bernard and A. Sciandra.

PhD in progress: E. Firippi. "Mathematical analysis, control design and coupling for models of biological oscillators", since October 2017, Univ. Côte d'Azur. Supervisors: M. Chaves.

PhD in progress: A. Yabo. "Control and optimal control of bacterial growth", since October 2018, Université Côte d'Azur. Supervisors J.-L. Gouzé and J.-B. Caillau (team McTao).

PhD in progress: A. Dos Reis de Souza. "Estimation and Control Methods for Microbial Communities", since October 2018, Université de Lille. Supervisors: J.-L. Gouzé and D. Efimov (team Valse, Inria Lille).

PhD in progress: B. Assis Pessi. "Modelling and Control of outdoor microalgal processes", since November 2019, Université Côte d'Azur. Supervisors: O. Bernard and L. Giraldi (team McTao).

PhD in progress: C. Djuikem. "Modelling and control of perennial plant phytopathogens", Université Côte d'Azur, since October 2019. Supervisors: F. Grognard, S. Touzeau, S. Bowong (Univ. Douala).

PhD in progress: M. Péré. "'Modeling cancer drug response heterogeneity using experimental tumor single-cell dynamics and transcriptomics', since October 2019, Univ. Côte d'Azur. Supervisors: M. Chaves and J. Roux (IRCAN, Nice).

10.2.3. Master thesis and internships

PFE: L. Guitou, EPU MAM, supervisors J.-L. Gouzé et V. Baldazzi.

M1: L. Guitou, EPU MAM, supervisors J.-L. Gouzé et V. Baldazzi.

M1: V. Tapissier, EPU MAM, supervisors J.-L. Gouzé et J. A. Sepulchre (UCA).

M2: L. Etienne. "Combinaison de microhabitats artificiels et de ressources alimentaires pour des acariens agents de lutte biologique", Université de Montpellier & Montpellier SupAgro, supervisors: C. Bresch (ISA), L. van Oudenhove (ISA) and L. Mailleret.

M2: B. Louis. "Modélisation individu-centrée pour optimiser l'introduction de populations et Applications en biologie de la conservation et lutte biologique". Université Côte d'Azur, supervisor: L. Mailleret.

M2: L. Plaza Alvarez, "Microalgae growth limited by light, nitrogen, and phosphorus". Universidad Técnica Federico Santa María, Valparaiso. Supervisors: C. Martinez von Dossow and O. Bernard.

Other: O. Bernard supervised a project involving 4 students from CentraleSupelec (first year of engineering school), 4 months, to design a system for microalgae growing under biofilm forms.

10.2.4. Juries

O. Bernard was referee for the jury of the PhD thesis of Angela La, "Process development for symbiotic culture of *Saccharomyces cerevisiae* and *Chlorella vulgaris* for in situ CO_2 mitigation". University Paris-Saclay (May, 22nd 2019).

M. Chaves was in the HDR jury of Eugenio Cinquemani as reviewer (November, Univ. Grenoble Alpes).

M. Chaves was in the PhD jurys of: Mohamed Ladjimi (as reviewer; September, Univ. Lille), Hugues Mandon (as examiner; November, Univ. Paris-Saclay), Luis Pereira (as advisor; November, Univ. Côte d'Azur).

J.-L. Gouzé was reviewer of the PhD thesis of Fatima-Zahra Tani, November, University of Montpellier.

10.3. Popularization

10.3.1. Articles and contents

- A popularization article has been published in the book " "Chimie verte et IAA - Vers une bioéconomie durable" [69].

10.3.2. Interventions

- O. Bernard gave two general public conferences on the topic "Will we drive cars powered by microalgae in 2030" (Saint Etienne de Tinée, 21st September and MAMAC, Nice, November, 13th).
- P. Bernhard did several interventions for a general audience in the Alpes-Maritimes (at Biot, Saint-Vallier and Sospel).
- L. Chambon participated in MASTIC activities in the school Emile Roux (5 June 2019).
- Several members of Biocore hosted schoolchildren to show them the team's research topics.

10.3.3. Internal action

- M. Chaves gave a presentation at the local PhD Seminars organized by the students, on modeling the interactions between mammalian cell cycle and circadian clock.

BIOVISION Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events

- Bruno Cessac was a member of the Local Committee of the Conference NeuroFrance 2019 https://www.neurosciences.asso.fr/V2/colloques/SN19/ (22-24 May 2019) one of the most important congress organised by the Société des Neurosciences with 1260 registrations: researchers, medical doctors, students, industrials, from France and from 26 foreign countries.

- Bruno Cessac has co-organized the parallel topical meetings and plenary sessions "Nonlinear waves in biology" in the international conference "Waves Cote d'Azur" http://wavescotedazur.org/ Nice, France, 4-7 June 2019.

- Hui-Yin Wu was in the Program Chair of the 8th Eurographics Workshop on Intelligent Cinematography and Editing, Genoa, Italy

- Hui-Yin Wu was member of the conference program committees IEEE Conference on Games, London, UK

- Hui-Yin Wu was member of the 3rd Conference on Computing Systems and Applications, Algiers, Algeria

- Bruno Cessac has co-organized the 1st meeting of the NeuroMod Institute, Frejus, 1-2 july 2019

10.1.2. Scientific Events: Organisation

- MOMI 2019 (Le MOnde des Mathématiques Industrielles) was a two-day workshop on applied and industrial mathematics. The workshop took place on the 25th and 26th of February, 2019 at the Inria Sophia Antipolis-Mediteranée research center with a focus on Big Data and Machine Learning. It was supported and financed by Inria, by the Maison de la Modélisation, de la Simulation et des Interactions – MSI of Université Côte d'Azur, by the Graduate School "Digital Systems for Humans" (EUR project ANR-17-EURE-004 from the "Programme Investissements d'Avenir"), by the Agence pour les Mathématiques en Interaction avec l'Entreprise et la Société (AMIES) and by the companies OLEA Medical, Thales Alenia Space and Wildmoka. In total, 3 keynote speakers, 7 industrial speakers and 90 participants (researchers, PhDs , postdocs and engineers) attended MOMI 2019. Finally, a company fair was organized to promote networking and identify future opportunities and collaborations. Selma Souihel and Evgenia Kartsaki have actively participated to the organizing committee. Their duties involved writing funding proposals, budget handling, communication and traveling arrangements for the keynote speakers, company fair and social event organization.

- E. Kartsaki and S. Souihel are participating to the organization of the PhD Seminars of Inria Sophia Antipolis - Méditerranée, organized and held by PhD candidates every two weeks and aim to share knowledge, and to promote collaborations, all in a friendly and interactive way. Selma Souihel and Evgenia Kartsaki have been members of the organizing committee during the academic year 2018/2019 (Evgenia Kartsaki is still an ongoing member). Both have been involved in the scheduling, communication and diffusion of the seminars. These tasks include calls for presentations, calendar planning and promotion of each seminar. Finally, they were also involved in the organization of the MOMI 2019 conference.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Pierre Kornprobst has been associate editor for the Computer Vision and Image Understanding Journal (CVIU) since Jul 2016.

10.1.3.2. Reviewer - Reviewing Activities

- A. Calabrèse has served as a peer-reviewer for the following international journals (IF):
  - Scientific Reports (4.644)
  - Investigative Ophthalmology and Vision Science (3.683)
  - PLoS ONE (3.344)
  - Acta Ophthalmologica (3.206)
  - Translational Vision Science and Technology (2.399)
  - Journal of Vision (2.141)
- Bruno Cessac has been reviewer for J. Math. Neuro (IF 2.091)
- Hui-Yin Wu has been reviewer for Multimedia Tools and Applications. (IF: 2.101)

10.1.4. Invited Talks

- E. Karstaki, The Rank Prize Funds - Symposium on The retinal processing of natural signals, Jun 2019, Grasmere, United Kingdom. Probing retinal function with a multi-layered simulator.
- E. Karstaki, First meeting of the NeuroMod Institute, Jul 2019, Fréjus, France. Probing retinal function with a multi-layered simulator.
- B. Cessac, D. Karvouniari, L. Gil, O. Marre,, Multiscale dynamics in retinal waves,LACONEU 2019 Conference, Valparaiso, Chile, January 18th, 2019.
- B. Cessac, S. Souihel, "Anticipation in the retina and the primary visual cortex : towards an integrated retino-cortical model for motion processing", Workshop on Visuo-motor Integration, EITN, Paris, 6-7 Jun 2019. https://visuomotor.sciencesconf.org/.
- B. Cessac, M. Mantegazza (IPMC) "Modelling of physiological and pathological states in neuroscience: exchanges among theoreticians and experimentalists", First meeting of the NeuroMod Institute 1-2 July 2019, Fréjus.
- B. Cessac, S. Souihel,"Motion anticipation in the retina", Neurostic Conférence, Sophia Antipolis, 14-15 October 2019, http://www.gdr-isis.fr/neurostic/?p=452.
- Hui-Yin Wu, "Thinking Like a Director: Film Editing Patterns for Virtual Cinematographic Storytelling", 8th Eurographics Workshop on Intelligent Cinematography and Editing, Genoa, Italy. May 2019.
- Hui-Yin Wu, "Interactive and Multimedia Storytelling", PhD Seminars, UCA Inria. November 2019.

10.1.5. Research Administration

Bruno Cessac is a member of the scientific council of the Institut NeuroMod de "Modélisation en Neurosciences et Cognition".

Bruno Cessac is a member of the "Bureau" of the Institut NeuroMod de "Modélisation en Neurosciences et Cognition".

Bruno Cessac was a member of the Groupe de Travail for the creation of the Inria project team FACTAS.

Bruno Cessac was a member of the Groupe de Travail for the creation of the Inria project team ATLANTIS.

Pierre Kornprobst has been an elected member of the Academic Board of UCA (*Conseil Académique*, from Nov. 2015 to Aug. 2019).

Pierre Kornprobst has been a member of the Comité de Suivi Doctoral (CSD) since March 2017.

Pierre Kornprobst has been an elected member of the Academic Council of UCA (*Conseil d'Administration*, since Dec. 2019).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence :

- Selma Souihel "Advanced network administration and security: architecture of a company network, services installation and configuration, users management, system and network security, cryptography, virtual private networks and secured protocols, and supervision tools, Numeric transmission : data acquisition, satellite and cable transmission, numeric modulation", 1ere année de l'IUT, Département Réseaux et Télécommunications, 64h/year, 50 students.

Master 1: Bruno Cessac (with F. Lavigne), *Introduction to Modelling in Neuroscience*, 40 hours, Master Mod4NeuCog, Université Nice Sophia Antipolis, France.

10.2.2. Supervision

- PhD defended on December 18th, 2019. Selma Souihel, "Generic and specific computational principles for the visual anticipation of motion trajectories". Started in November 2016. Supervisor B. Cessac

- PhD in progress: Evgenia Kartsaki. "How Specific Classes of Retinal Cells Contribute to Vision: a Computational Model", Started in October 2017. Supervisor B. Cessac codirection with E. Sernagor, ION.

10.2.3. Juries

Pierre Kornprobst was member of the Comité de suivi de thèse of Alexandre Montlibert, from CERCO, Toulouse, France.

Pierre Kornprobst was reviewer of the PhD of Erwan David, entitled "L'impact des troubles du champ visuel sur les dynamiques spatio-temporelles de l'observation de sce`nes naturelles", from Université de Nantes, France.

Bruno Cessac was member of the Comité de suivi de thèse of Matthieu Sarazin from Paris VI and Halgurd Taher from EDSFA Nice.

CAMIN Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

Christine Azevedo, Jessica Rose (Univ. Stanford, USA), Kelly Greves (Cincinnati Children's Hospital Medical Center, USA) organized an Instructional course during the EACD Conference (May, 23rd, 2019) in Paris : "Multichannel Neuromuscular Stimulation: NMES-assisted gait for children with cerebral palsy".

9.1.1.1. Member of the Conference Program Committees

- Daniel Simon is member of the ICINCO conference program committee

9.1.1.2. Reviewer

- Daniel Simon was reviewer for the RTNS, IEEE SYSTOL and IFAC ICINCO conferences
- Christine Azevedo was reviewer for IEEE EMBC, IROS, IFESS conferences

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- David Guiraud is member of the Editorial Board of Journal of Neural Engineering (JNE) and Medical and Biological Engineering and Computing (MBEC).
- David Guiraud is Associate Editor of Theme 6 (Neurorahabilitation) at IEEE EMBC conference.
- Christine Azevedo is member of the Editorial Board of Neuroprosthetics as Review Editor for Frontiers in Neurology and Frontiers in Neuroscience
- Christine Azevedo is member if ERCIM News' Editorial Board as Inria representant.

9.1.2.2. Reviewer - Reviewing Activities

- Daniel Simon was reviewer for Simulation: Transactions of the Society for Modeling and Simulation International.

9.1.3. Invited Talks

- Daniel Simon gave a talk on "Feedback schedulers in practice A video decoder example" at the 40th International Summer School of Automatic Control Grenoble, France, September 9th, 2019.
- Daniel Simon gave a talk on "Dynamic simulation of a hand under electrical stimulation" at the "Modeling human through robotics, neuroscience, and ergonomics" AIST workshop, Montpellier, France, October 24th, 2019.
- François Bonnetblanc gave a talk on "Awake neurosurgery and electrophysiological spreading in the human brain: towards clinical applications through brain mapping? A new insight in brain connetivity" at the "Modeling human through robotics, neuroscience, and ergonomics" AIST workshop, Montpellier, France, October 24th, 2019.
- David Guiraud gave a talk on "Bidirectional control of hand prosthesis for amputees. A new breakthrough with sensory feedback to the brain" at the "Modeling human through robotics, neuroscience, and ergonomics" AIST workshop, Montpellier, France, October 24th, 2019.
- Christine Azevedo gave a talk on "FES-assisted grasping" at the "Modeling human through robotics, neuroscience, and ergonomics" AIST workshop, Montpellier, France, October 24th, 2019.
- Christine Azevedo gave a talk on " Interest of IMU sensors in various FES usages" at Lyon CyberBike event (https://lcb2019.sciencesconf.org/), September 9th, 2019.
- Christine Azevedo gave a talk on "Restoring a sport activity by stimulating paralyzed muscles" during Inria Scientific Days (June 2019).

9.1.4. Leadership within the Scientific Community

Christine Azevedo is member of the board of directors of International Functional Electrical Stimulation Society (IFESS).

9.1.5. Scientific Expertise

- Christine Azevedo is member of LIRMM CNU 61 commission
- Christine Azevedo was member of the selection committee for a Lecturer position at ISIR laboratory (Université Pierre et Marie Curie), (April 15th, 2019)
- Christine Azevedo was member of the selection committee of Researcher Competition at Inria Bordeaux (May 2019)

9.1.6. Research Administration

Christine Azevedo was member of Inria Evaluation Committee (CE). She participated in the competitive examinations for junior researcher recruitment in Inria Bordeaux Center (April 2019) and Inria Grenoble Center (May 2018).

Christine Azevedo is member of Inria Ethical Committee (COERLE).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master Neuroprothèses : Daniel Simon, "Control basics", 6.5h, M2, Université de Montpellier, France

Master Neuroprothèses : François Bonnetblanc, "Neurophysiologie", 8h, M2, Université de Montpellier, France

9.2.2. Supervision

PhD : Maxence Blond, "Optimisation de la propulsion d'un véhicule sous-marin à propulseurs azimutaux", University of Montpellier, April 17th 2019, Daniel Simon

PhD : Anthony Boyer, "Électrophysiologie cérébrale associée à la chirurgie éveillée des tumeurs lentes : Couplage de l'ECoG et de la SED pour les investigations peropératoires et analyse de l'EEG postopératoire", University of Montpellier, September 24th 2019, François Bonnetblanc.

PhD in progress : XinYue Lu, "Cardiorespiratory Monitoring by Microphone via Tracheal Sounds in the Context of Implanted Phrenic Nerve Stimulation", University of Montpellier - Inria - NeuroResp, April 2017-March 2020, Christine Azevedo, Thomas Similowski, Serge Renaux

PhD in progress : Lucie William, "Selective implanted neural stimulation to recover the prehension for quadriplegic", University of Montpellier-Inria-NEURINNOV, october 2019-september 2022, supervised by David Guiraud and Christine Azevedo

PhD in progress : Hélène Moron, MD, "Jitter of MUAP measured through needle EMG used as a biomearker of the Botulin toxin effect", University of Montpellier-Inria, october 2019-september 2022, supervised by David Guiraud and Arnaud Dupeyron.

9.2.3. Juries

Christine Azevedo was external examiner for the PhD thesis of Sean Doherty (UCL, London, France) "Investigation of transcutaneous neuromodulation techniques and development of a wearable device for control of the bladder following spinal cord injury." (April 30th 2019).

Christine Azevedo was examiner for the PhD thesis of Osama Mazhar (University of Montpellier, LIRMM, France) "Recognition of human gestures based on vision for the human-robot interaction." (October 24th 2019).

Christine Azevedo was examiner for the PhD thesis of Andrii Shachykov (University of Lorraine, LORIA, France) "Neural modeling of human motor coordination inspired by biological signals aiming for parkinsonian gaits." (December 17th 2019).

9.3. Popularization

- Christine Azevedo presented FREEWHEELS project at Sport Unlimitech event in Lyon https://sportunlimitech.com/ (September 2019)

- CAMIN team was present (demonstration and masterclass lecture) at FUTURES festival in Paris https://futures.paris/ (June 13th 2019)

- CAMIN team was present (demonstration and lecture) during the visit of the Secretary of State for Persons with Disabilities at Inria Paris Center (November 19th 2019)

9.3.1. Education

- Christine Azevedo was mentor (2018-2019) for one Savanturiers project with Saussan school (CM1/CM2 level) https://savanturiersdelahightech.wordpress.com/category/projets-2018-2019/ecole-elementaire-joseph-delteil/

- Christine Azevedo is mentor (2019-2020) for one Savanturiers project with Montbazin school (CE1/CE2 level) https://savanturiers-projects.cri-paris.org/projects/NhbsL7Uz/blogentries

- Christine Azevedo organized initiation sessions to informatics using Thymio robot at École Valfalis (Montbazin, France) in CP, CE1, CE2, CM1 and CM2 levels, 5 sessions of 1 hours per level (March-June 2019).

- Christine Azevedo participated to a 1-day of training future trainers in robotics at school (DANE) (March 2019).

9.3.2. Interventions

- CAMIN team welcomed 1 week internships of 3 schoolchildren this year (4e, 3e)

<p align="center" style="color:red">CAPSID Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

- Sabeur Aridhi co-chaired the third international workshop on Advances in managing and mining large evolving graphs (LEG - https://leg-ecmlpkdd19.loria.fr/) held in conjunction with the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD 2019).

- Isaure Chauvot de Beauchêne and Marie-Dominique Devignes organised the first international Workshop (5 days) of the H2020-ITN project RNAct, "RRMs, RNA and RNAct" (http://rnact.eu/Workshop1/)

- Isaure Chauvot de Beauchêne organised the 3rd meeting (regional, 1 day, 25 pers.) of the Glyco-EST group. GlycoEst is an informal working group which was recently created to develop an interdisciplinary regional network of glyco-scientists.

- Isaure Chauvot de Beauchêne organised a lecture and practical course at the AlgoSB WinterSchool 14-21 january 2019 on *Predicting RNA-Protein Interactions*.

9.1.2. Scientific Events: Selection

- Members of the following Conference Program Committees : Joint ICML 2019 Workshop on Computational Biology, IWBBIO 2019, ACM-BCB 2019, BIBM 2019, SWAT4HCLS 2019, EGC 2019.

9.1.3. Journal

- Editorial board of Intelligent Data Analysis (Sabeur Aridhi), Scientific reports (David Ritchie).

- Reviewer for Nucl. Acids Research (Marie-Dominique Devignes).

- Contribution to the IMIA Yearbook of Medical Informatics, 2019 (Malika Smaïl-Tabbone, [20])

9.1.4. Leadership within the Scientific Community

- Isaure Chauvot de Beauchêne is co-founder of the 3D Bioinfo ELIXIR Community.

- Marie-Dominique Devignes and Malika Smaïl-Tabbone have been invited to participate in the INI-CRCT network which is the subnetwork of the F-CRIN project (French Clinical Research Investigation Network) dedicated to cardio-renal diseases. Their contribution is related to their expertise in machine learning and network science.

9.1.5. Scientific Expertise

- Marie-Dominique Devignes reviewed a grant application for FWO (Flanders Research Organization).

- Malika Smaïl-Tabbone and Marie-Dominique Devignes both reviewed grant applications for the ANR.

9.1.6. Research Administration

- Sabeur Aridhi is a member of the Inria Nancy Grand-Est CDT: Commission du Développement Technologique.

- Marie-Dominique Devignes was a member of the ComiPers at Inria Nancy Grand-Est: Commission for the evaluation of CORDI post-doc and CORDI-S doctoral application.

- Malika Smaïl-Tabbone is a member of the IES commission for the elaboration of the policy concerning Scientific Information and Edition Scientifique at Inria Nancy Grand-Est and at the LORIA.
- Dave Ritchie was a member of the CMI at the LORIA: Commission de Mention Informatique of the Université de Lorraine's IAEM doctoral school.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Sabeur Aridhi and Malika Smaïl-Tabbone are enseignants-chercheurs with a full service. Sabeur Aridhi is responsible for the major in IAMD (Ingénierie et Applications des Masses de Données) at TELECOM Nancy (Université de Lorraine),

Marie-Dominique Devignes teaches about 34h at Telecom Nancy (1A) and 10h in the Cursus Master Ingenieur at the Université de Lorraine.

Isaure Chauvot de Beauchêne teaches about 10h in the Cursus Master Ingenieur at the Université de Lorraine.

9.2.2. Supervision

- PhD: Maria Elisa Ruiz Echartea, *Multi-component protein assembly using distance constraints*. Université de Lorraine. Defense date : 18/12/2019 (Manuscript under revision, soon in HAL). David Ritchie, Isaure Chauvot de Beauchêne.
- PhD in progress: Kévin Dalleau, *Complex graph analysis for classification: application to disease nosography,* 01/12/2016, Malika Smaïl-Tabbone, Miguel Couceiro.
- PhD in progress: Bishnu Sarker, *Developing distributed graph-based approaches for large-scale protein function annotation and knowledge discovery,* 01/11/2017, David Ritchie, Sabeur Aridhi.
- PhD in progress: Antoine Moniot, *Modeling protein / nucleic acid complexes by combinatorial structural fragment assembly,* 01/11/2018, David Ritchie, Isaure Chauvot de Beauchêne.
- PhD in progress: Athénaïs Vaginay, *Model selection and analysis for biological networks: use of domain knowledge and application to networks disturbed in diseases,* 01/11/2018, Taha Boukhobza, Malika Smaïl-Tabbone.
- PhD in progress: Anna Kravchenko, *Fragment-based modeling of protein-RNA complexes for protein design,* 01/10/2019, Malika Smaïl-Tabbone, Isaure Chauvot de Beauchêne.
- PhD in progress: Hrishikesh Dhondge, *A new knowledge base for modeling and design of RNA-binding proteins,* 01/10/2019, Marie-Dominique Devignes, Isaure Chauvot de Beauchêne.
- PhD in progress: Diego Amaya Ramirez, *HLA genetic system and organ transplantation: understanding the basics of immunogenicity to improve donor / receptor compatibility when assigning grafts to recipients,* 01/10/2019, Marie-Dominique Devignes, Jean-Luc Taupin.
- PhD in progress: Kamrul Islam, *Distributed link prediction in large complex graphs: application to biomolecule interactions,* 01/11/2019, Malika Smail-Tabbone, Sabeur Aridhi.

9.2.3. Juries

- Sabeur Aridhi was a member (examinator) of the PhD committee of Manel Zoghlami, Universiy of Clermont Auvergne, *Multiple instance learning approaches for ionizing-radiation-resistance prediction,* 20/12/2019.
- Sabeur Aridhi was a member (reviewer) of the PhD committee of Zekarias Tilahun Kefato, Universiy of Trento, *Network and Cascade Representation Learning Algorithms based on Information Diffusion Events,* 29/04/2019.
- Sabeur Aridhi was a member (reviewer) of the PhD committee of Nasrullah Sheikh, Universiy of Trento, *Network Representation Learning with Attributes and Heterogeneity,* 16/07/2019.

- Marie-Dominique Devignes was a member (reviewer) of the PhD committee of Manel Zoghlami, Universiy of Clermont Auvergne, *Multiple instance learning approaches for ionizing-radiation-resistance prediction,* 20/12/2019.

9.3. Popularization

9.3.1. Interventions

- Dominique Mias-Lucquin was co-organizer of the "Pint of Science" event, 21-22 may, 2019 (24 countries involved ; http://pintofscience.com).

CARMEN Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Member of the Organizing Committees

Several members of the team were involved in the organization of the 10th international conference on Functional Imaging and Modeling of the Heart (FIMH), that was held at Bordeaux in July 2019.

M. Leguèbe co-organizes the seminar of team "Calcul Scientifique et Modélisation" (IMB, Université de Bordeaux).

Lisl Weynans co-organizes with Edward Vigmond (IHU Liryc) the bi-monthly journal club of the modelling group at Liryc, and organizes a monthly workgroup about applied numerical methods, within the Scientific Computing and Modelling team at IMB (Institut de Mathématique de Bordeaux)

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

Mostafa Bendahmane is member of the editorial board of the "Moroccan Journal of Pure and Applied Mathematics", Mark Potse is an associate editor for "Frontiers in Cardiac Electrophysiology" and an Associate editor for "Journal of Electrocardiology".

9.1.3. Invited Talks

- Lisl Weynans: Mini-symposium on "Numerical methods for interfacial dynamics", ICIAM 2019, Valence, Spain.
- Nejib Zemzemi: Maghrebian Meeting of Young Researchers in Pure and Applied Mathematics, MYRPAM. Hammamet, Tunisia 9-12 December, 2019.
- Mostafa Bendahmane: "Recent progress in inverse problems in electrocardiology", at CAMS, American university of Beirut, Libanon.
- Mark Potse: "Atrial fibrillation dynamics", invited talk at the 2019 International Congress on Electrocardiology, Belgrade, Serbia, 2019.
- Mark Potse: "ECG imaging without imaging", invited talk at the 2019 International Congress on Electrocardiology, Belgrade, Serbia, 2019.
- Lisl Weynans: invited talk on "Hywec 2 : The Hydrodynamics of Wave Energy Convertors", Talence, 2019.
- Lisl Weynans: invited talk at the Seminar of "Institut de Mathematiques de Toulouse", 2019.
- Lisl Weynans: invited talk at the Workshop of ANR RheoSuNN, Ecole Polytechnique, Palaiseau, March 2019.
- Yves Coudière: invited plenary talk at the "9e biennale des mathématiques appliquées et industrielles de la SMAI", Guidel, 2019.
- Nejib Zemzemi: invited talk on "Mathematical Modelling of the electrical activity of the heart from ion-channels to the body surface: Forward and Inverse problems", at Institut de recherche mathématique de Rennes, March 14, 2019.

9.1.4. Research Administration

Yves Coudière is a deputy director of Directeur IMB (Institut de Mathématiques de Bordeaux, UMR 5251 CNRS, Ub, Bdx-INP). Gathering around 160 permanent members, it organizes the research in mathematics and applications of mathematics in Bordeaux.

Michael Leguebe is the secretary of the CLHSCT (Comité Local Hygiène et Sécurité au travail) of the Inria BSO research center.

Lisl Weynans is a member of the "conseil UFR maths et interactions", a member of the "conseil scientifique IMB" and a member of the "BCP" of the Inria BSO research center.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

The 2 assistant professors and 1 professor of the team teach at several levels of the Bordeaux University programs in Mathematics and Neurosciences (respectively, 192, 192 and 96 h/year on average). The researchers also have a regular teaching activity, contributing to several courses in the Applied Mathematics at the Bachelor and Master levels (usually between 16 and 32 h/year).

The PhD student are used to teach between 32 and 64 h/year, usually courses of general mathematics in L1 or mathematics for biologists in L1 or L2.

Teaching responsibilities at the University of Bordeaux:

- Yves Coudière: Master MAS (Mathématiques Appliquées, Statistiques), parcours MNCHP (Modélisation Numérique Calcul Haute Performance),
- Yves Coudière: Licence Mathématique parcours ingénierie mathématique,
- Lisl Weynans: Mineure Mathématiques du parcours International de la Licence
- Mostafa Bendahmane: Responsable de la mobilité internationale des étudiants de Licence MIASHS.

Courses (L for Bachelor level, M for Master level):

- Numerical analysis (L2)
- Programming for scientific computing with C++ (L3)
- Programming projects with Python (M1)
- Numerical approximation of PDEs: Finite Differences, Finite Elements, Finite Volumes (M1, M2)
- Supervision of programming projects (L3, M1)
- Mathematical modelling in L2 parcours medicine and physics
- Linear Algebra, Optimization under constraints (L2 and Essca school)
- Analysis, L2
- Computational Neurosciences, M2
- Neuropsychology and Psychophysiology, L3
- Graduate program EUR Digital Public Health, Bordeaux University, March 2019. Philosophy of science and the role of numerical models: introductory course in the module Modeling in life science

Courses at doctoral level:

- Liryc summer school, July 2019: Computer modeling of cardiac electrophysiology, 3 hours
- Course of mathematics for medicine students: March 2019, course organized by the Ecole Doctorales EDMI and SVS of Bordeaux University Introductory course of mathematical modelling and parameter estimation techniques in complex models (4h30)

9.2.2. Supervision

PhD : Antoine Gérard, Modèles numériques personnalisés de la fibrillation auriculaire , Univ. Bordeaux, July 12th 2019, encadrant: Yves Coudière

PhD in progress : Andony Arrieula, Oct. 2018, encadrant: Mark Potse

PhD in progress: Oumayma Bouhamama, Oct. 2018 , encadrante: Lisl Weynans

PhD in progress : Syed Hassaan Ahmed Bukhari, Oct. 2018, encadrant: Mark Potse

PhD in progress : Amel Karoui, Oct 2017, encadrants: Mostafa Bendahmane and Nejib Zemzemi

PhD in progress : Bachar Tarraf, Oct. 2018, encadrant: Yves Coudière and Michael Leguebe

9.2.3. Juries

- Lisl Weynans: member of the Jury for the recruitment of CR Inria, BSO research center.
- Lisl Weynans : member of the jury for the PhD of Umberto Bosi in applied mathematics (Univ. Bordeaux)
- Yves Coudière: chairman of the jury for the PhD of J. Engelhardt in neurology (Univ. Bordeaux)
- Yves Coudière: member of the jury for the PhD of A. Gérard in applied mathematics (Univ. Bordeaux)
- Nejib Zemzemi : member of the jury for the PhD of Rabeb Chamekh in applied mathematics
- Mostafa Bendahmane: member of the jury for the PhD of Mohamed Zagour in applied mathematics.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

Coordination of a workgroup entitled "CultureMATH Bordeaux", working on writing dissemination articles for the website https://culturemath.ens.fr.

9.3.2. Education

Organization of "Moi informaticienne, moi mathématicienne (MIMM)": one week internship at the University for young girls (15-16 year old) interested in maths and informatics.

9.3.3. Interventions

- National events: Fête de la Science, Semaine des maths,
- In educational institutions: several talks in high-schools about scientific computing and applied mathematics
- Presentation stand for "Simric" at the 10 years anniversary of the Inria Bordeaux Sud-Ouest centre.
- Modeling stand at the "Journée portes ouvertes de Liryc", 2019.
- Reception of 5 high-school pupils (élèves de 3e, 15 years old).

<p style="text-align:center; color:red;">**CASTOR Project-Team**</p>

6. Dissemination

6.1. Promoting Scientific Activities

6.1.1. Journal

6.1.1.1. Member of the Editorial Boards

- J. Blum is member of the editorial board of the Journal Scientific Computing.
- F. Rapetti is member of the editorial board of the Advances in Computational Mathematics (ACOM) journal by Springer
- C. Boulbe is managing editor of the SMAI Journal of Computational Mathematics

6.1.1.2. Reviewer - Reviewing Activities

- <u>H. Guillard</u> has been reviewer for the Journal of Computational physics, Computers and Fluids and International Journal for Numerical methods in Fluids.

6.1.2. Invited Talks

- F. Rapetti: Keynote speaker at the Enumath conference (Egmond aan Zee), oct 2019, "High-order Whitney forms on simplices"

6.1.3. Leadership within the Scientific Community

- H. Guillard is coordinator of the topic "Turbulence and transport of edge plasma" within the Fédération FR-FCM

6.2. Teaching - Supervision - Juries

6.2.1. Teaching

Licence : F. Rapetti, Mathématiques 2,30h équivalent TD, L2, Université Cote d'Azur, France

Master : F. Rapetti, Méthodes numériques, 70h équivalent TD, M1, Université Cote d'Azur, France

Ecole d'ingénieur, C. Boulbe, Analyse Numérique 2, 45 équivalent TD, niveau L3, Université Cote d'Azur

Ecole d'ingénieur, C. Boulbe, Analyse numérique 1, 71h équivalent TD, niveau L3, Université Cote d'Azur

Ecole d'ingénieur, C. Boulbe, Algèbre linéaire et Scilab, 26h équivalent TD, Université Cote d'Azur

Ecole d'ingénieur, C. Boulbe, Projet 1, 41h équivalent TD, Université Cote d'Azur

Licence: A. Sangam, Mathématiques Fondements 1, 60h, Semestre 1 de la Licence, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Méthodes Mathématiques - Approche Continue, 30h, Semestre 1 de la Licence, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Mathématiques Compléments 1, 5h, Semestre 1 de la Licence, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Mathématiques Fondements 2, 6h, Semestre 2 de la Licence, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Analyse 2, 2h, L2, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Analyse Numérique, 70h, L3, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Calcul Différentiel, 20h, L3, Université Nice Sophia Antipolis, France

Ecole d'ingénieur/Master: B. Nkonga, Méthode des éléments finis, 24h, M2, Polytech Nice Sophia, France

Ecole d'ingénieur/Master: B. Nkonga, Eléments finis mixtes, 24h, M2, Polytech Nice Sophia, France

6.2.2. Supervision

PhD : Xiao Song, Model-based Control-oriented Scenario Construction in Tokamaks, Université Cote d'Azur, 6 décembre 2019, Blaise Faugeras, Holger Heumann

PhD in progress : Ali Elarif, "Simulation numérique des instabilités magnétohydrodynamique dans les Tokamaks", October 2017, Hervé Guillard

6.2.3. Juries

- Hervé Guillard has been part of the jury for the Phd defence of Corentin Prigent, "Etude numérique et modélisation du modèle d'Euler bi-température : point de vue cinétique", Bordeaux University, 24/10/2019.

- Hervé Guillard was referee for the Phd jury of Clément Colas, "Formulation intégrale implicite pour la modélisation d'écoulements fluides en milieux encombrés", AMU University, 14/11/2019.

- Hervé Guillard has been part of the jury for the Phd defence of Quentin Carmouze, "Modélisation et simulation numérique des écoulements diphasiques denses et dilués", Nice University, 28/12/2019.

- F. Rapetti: Juan Antonio Soler Vasco, Univ. Aix-Marseille, Sep. 2019.

- F. Rapetti: Anouk Nicolopoulos-Salle, Univ. Sorbonne Paris, Déc. 2019.

- B. Faugeras, H. Heumann, H. Guillard and J. Blum: Xiao Song, Université Cote d'Azur, Dec. 2019

COFFEE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Journal

8.1.1.1. Member of the Editorial Boards

Thierry Goudon is Co-Ed. in Chief SMAI J. Comput. Math.

8.1.1.2. Reviewer - Reviewing Activities

The team members serve regularly as reviewers for journals in applied mathematics, scientific computing, numerical analysis, mathematical analysis.

8.1.2. Scientific Expertise

T. Goudon has been chair of the international panel of experts for the evaluation of all the Research Units of Mathematics in Portugal, nominated by the **Fundação para a Ciência e a Tecnologia**. Not only the panel had to write an assessment (see https://www.fct.pt/apoios/unidades/avaliacoes/2017/docs/Mathematics.pdf) on the scientific production and activities of the research units, but it was also in charge of the attribution of the funding, PhD and postdoc fellowships, for a total amount of 5.5 MEUR (see https://www.fct.pt/apoios/unidades/avaliacoes/2017/docs/Mathematics_table.pdf).

T. Goudon is Scientific Officer at the Ministry of Research.

T. Goudon is member of the scientific boards of CIRM and FSMP.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Florent Berthelin, Master2 Mathématiques fondamentales, Université Côte d'Azur, 120h.
Florent Berthelin, Chair of the Master 2 Mathématiques fondamentales, Université Côte d'Azur.
Florent Berthelin, Analysis, L2, Université Nice Sophia Antipolis, 72h.
Laurent Monasse, Numerical analysis, L3, Université Nice Sophia Antipolis, 40h.
Thierry Goudon is President of the national competition to hire teachers (agregation de mathematiques).

8.2.2. Supervision

- PhD: Giulia Lissonni, DDFV methods and domain decomposition: applications in fluid mechanics, 04 October 2019, Stella Krell and Thierry Goudon.
- PhD in progress: Kevin Atsou, Mathematical modeling of tumor growth, analysis and simulation, 01 October 2017, Thierry Goudon
- PhD in progress: Billel Guelmame, Conservation laws in mechanics, 01 October 2017, Stéphane Junca
- PhD in progress: Leo Vivion, Dynamical model of a Lorentz gas: kinetic approach, analysis and asymptotic issues, 01 September 2017, Thierry Goudon
- PhD in progress: Frédéric Marazzato, Modeling of fracture and fragmentation using a Discrete Element method, 01 October 2016, Alexandre Ern, Karam Sab and Laurent Monasse.
- PhD in progress: Nadine Dirani, Effect of a shock wave on a structure with contact, 01 November 2018, Thierry Goudon and Laurent Monasse.

8.2.3. Juries

T. Goudon has been reviewer for the PhD theses:
- Z. Karaki, Équations cinétiques avec champ magnétique", Nantes, Dec. 2019.
- M. Mezache, "Processus oscillatoires lors de l'agrégation et la fragmentation des fibres amyloïdes", Sorbonne Univ., Dec. 2019.

COMMEDIA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

- Céline Grandmont
    - Co-organizer of Inria-LJLL meeting in scientific computing
- Damiano Lombardi
    - Co-organisation (with Sanjay Pant, Swansea University) of two mini-symposia: Machine learning methods in biomedical engineering and Uncertainty Quantification and Bayesian inference in biomedical applications at CMBE 2019, June 2019, Sendai, Japan
    - Co-organizer of Inria-LJLL meeting in scientific computing
- Olga Mula
    - Co-organizer of Summer School on Sparity for Physics, Signals and Learning, at Inria Paris, June 2019
    - Co-organiser of the GdT Stat-Num at Paris Dauphine

10.1.1.1. Member of the Organizing Committees

- Céline Grandmont
    - Member of the local organizing comittee of WCCM 2020

10.1.2. Scientific Events: Selection

- Muriel Boulakia
    - Member of the scientific committee of LIA COPDESC and Lions-Magenes Days, LJJL, November 2019, Paris
- Miguel Ángel Fernández Varela
    - Member of the scientific committee of XDMS 2019, July 2019, Lugano

10.1.2.1. Member of the Editorial Boards

- Céline Grandmont
    - Member of the editorial board of Mathematical Modelling of Natural Phenomena
    - Member of the editorial board of Journal of Mathematical Fluid Mechanics (since November 2019)
- Olga Mula
    - Member of the editorial board of Calcolo (since October 2019)

10.1.2.2. Reviewer - Reviewing Activities

- Muriel Boulakia
    - Expert for « Appel à projets générique », ANR 2019

10.1.3. Research Administration

- Miguel Ángel Fernández Varela
    - Head of Science, Inria Paris (from September 2019)
    - Deputy Head of Science, Inria Paris (until August 2019)
    - Member of the Inria Evaluation Committee

- Céline Grandmont
    - Member of the Inria Evaluation Committee
    - Member of the Inria Parity Committee
    - Member of the scientific board of the EDMH, Paris Saclay

10.1.4. Conferences

- Muriel Boulakia
    - Seminar, Modeling and scientific computation, November 2019, LAGA, Univ. Paris 13
    - Invited speaker, Control and stabilization issues for PDE, September 2019, Toulouse
    - Contributed talk in minisymposium, Applied Inverse Problems Conference, July 2019, Grenoble
    - Seminar, Numerical Analysis and PDE, Université Lille, March 2019, Lille
    - Invited speaker, Workshop on fluid-structure interaction, March 2019, Politecnico di Milano, Italy
- Miguel Ángel Fernández Varela
    - Seminar, Laboratoire Mathématiques Jean Leray, Univ Nates, Nantes
    - Contributed talk in minisymposium, ICIAM, July 2019, Valencia, Spain
    - Invited speaker, iHEART conference on Modelling the Cardiac Function, July 2019, Varese, Italy
- Felipe Galarce Marin
    - Seminar at Inria Chile, July 2019, Santiago, Chile
    - Semina at Universidad Técnica Federico Santa Maria, July 2019, Valparaiso, Chile
    - Seminar at Pontificia Universidad Católica de Valparaíso, July 2019, Valparíso, Chile
    - Contributed talk in minisymposium, CSMA, May 2019, Giens
    - Contributed talk in minisymposium, Enumath, September/October 2019, Egmond aan Zee, The Netherlands
- Fannie Gerosa
    - Contributed talk in minisymposium, 9th biennial congress of SMAI, May 2019, Guidel Plages, France
    - Contributed talk in minisymposium, 15th US National Congress on Computational Mechanics, July/August 2019, Austin, Texas
- Céline Grandmont
    - Plenary speaker, International Meeting on Applied Mathematics & Evolution, La Rochelle, April 2019
    - Keynote speaker, PDE 2019: Partial Differential Equations in Fluids and Solids, Berlin, Sep. 2019
    - Invited Speaker, International Conference "Multiscale Modeling in Fluid Mechanics and Fluid-Structure Interaction" , Oct. 2019, Vilnius
    - Seminar, ULB, Bruxelles, Nov. 2019
    - Seminar, CMAP, Ecole Polytechnique, Dec. 2019
- Damiano Lombardi
    - Contributed talk in minisymposium, ICIAM, July 2019, Valencia, Spain
    - Contributed talk at the Lions-Magenes days, November 2019, Paris.
    - Contributed talk at Mortech, November 2019, Paris.

- Olga Mula
  - Contributed talk at Enumath, September/October 2019, Egmond aan Zee, The Netherlands
  - Contributed talk at INdaM workshop on kinetic equations, November 2019, Rome, Italy
  - Contributed talk at Mortech, November 2019, Paris.
- Fabien Raphel
  - Contributed poster at The Safety Pharmacology Society (SPS) annual meeting, September 2019, Barcelona, Spain
  - Contributed talk at The Safety Pharmacology Society (SPS) webinar, November 2019, Paris
  - Invited talk at Math jobs forum University of Nantes, January 2019, Nantes

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence:

- Muriel Boulakia
  - Projects on differential equations, 34h, L3, Polytech Sorbonne, Sorbonne Université
  - Nonlinear systems and optimization, 35h, L3, Polytech Sorbonne, Sorbonne Université
  - Numerical approximation of functions, 36h, L3, Sorbonne Université
- Fannie Gerosa
  - Function series, integrals and application to differential equation, 38h, L3, Sorbonne Université
- Damiano Lombardi
  - Cours/TD analysis and scientific computing, 32 h, ENPC, L3.
  - Model reduction in large dimensions, 9h, ENPC, L3.
  - TD, Function approximation, Sorbonne University , 18h, L3

Master:

- Muriel Boulakia
  - Preparatory course for teaching admission examination "Agrégation", 40h, M2, Sorbonne Université
- Miguel Ángel Fernández Varela
  - Modeling and numerical methods for hemodynamics, 30h, M2, Sorbonne Université
- Damiano Lombardi
  - Mini-cours Modeling of cardiac electrophysiology, 3h, M2, Ecole des Mines Paristech

Others:

- Céline Grandmont
  - Invited Lecturer, Hausdorff School on "Modeling and Analysis of Evolutionary Problems in Materials Science" , 6h, Bonn, Sept. 2019

– Invited Lecturer, Institut d'Etudes Scientifiques de Cargèse, Summer school : *Why modelling the pulmonary ventilation? Music, exercise and medicine*, 1h30, November 2019

10.2.2. Supervision

PhD: Ludovic Boilevin-Kayl, Modeling of cardiac implantable devices, Sorbonne Université, defended on July 10, 2019. Supervisors: J.-F. Gerbeau & M.A. Fernández Varela

PhD: Alexandre This, Fusion data/simulation for the assessment of mitral regurgitation, Sorbonne Université, defended on May 28, 2019. Supervisors: O. Bonnefous, M.A. Fernández Varela, J.-F. Gerbeau & H. Morales

PhD in progress: Mocia Agbalessi, Modeling and patient specific fluid-structure interaction simulations of aortic pathological configurations. Since April, 2019, Supervisors: M.A. Fernández Varela & D. Lombardi

PhD in progress: Felipe Galarce, Enhancing hemodynamics measurements with mathematical modeling, since December 2017. Supervisors: J.-F. Gerbeau, D. Lombardi & O. Mula

PhD in progress: Fannie Gerosa, Immersed boundary methods for fluid-structure interaction with topological changes, since January 2018. Supervisor: M.A. Fernández Varela

PhD in progress: Fabien Raphel, Mathematical modeling and learning of biomedical signals for safety pharmacology. Since April 2019. Supervisors: J.-F. Gerbeau & D. Lombardi

10.2.3. Juries

- Miguel Ángel Fernández Varela
  - Hiring committees: Inria Paris (CRCN, Vice-président), Université de Franche-Comté (MdC)
  - PHD committee: P. Quemar, Université Paris-Nord (reviewer), D. Nolte, Groningen University, The Netherlands (reviewer), R.J. Rebolledo Cormack, Universidad de Concepción, Chile (reviewer)
- Céline Grandmont
  - Member of the "agrégation" jury in mathematics
  - Hiring committees: Inria CRCN, Inria DR2
  - PHD committee: N. Lauzeral, Ecole centrale de Nantes (reviewer), F. Vergnet, Paris Sud Univ (member), A. Dekkers, Centrale Suppelec (reviewer)
  - HDR committee: A. Decoene, Paris-Sud Univ (reviewer)

10.3. Popularization

10.3.1. Interventions

- Céline Grandmont
  - Meeting with junior high school students, Collège Iqbal Masih, Saint-Denis. Interview: https://www.youtube.com/watch?v=eJVaVB7z8tU&t=12s

DRACULA Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events: Organisation

7.1.1.1. General Chair, Scientific Chair

- Olivier Gandrillon, International Conference of Systems Biology 2019, Lyon, http://www.ens-lyon.fr/evenement/recherche/icsb-2018-19th-international-conference-systems-biology

7.1.1.2. Member of the organizing Committees

- Laurent Pujo-Menjouet, The Society for Mathematical Biology, Annual Meeting and Conference, Montreal, Canada, mini-symposium co-organizer, 21-26 July 2019

7.1.2. Journal

7.1.2.1. Member of the Editorial Boards

- Mostafa Adimy, Journal of Nonlinear Systems and Applications
- Olivier Gandrillon, Associate editor for BMC research notes
- Vincent Calvez, Journal of Mathematical Biology; SIAM Journal of Mathematical Analysis
- Laurent Pujo-Menjouet, Associate editor of PLOS ONE; Journal of Thoerical Biology; Mathematical modelling of natural phenomena

7.1.2.2. Reviewer - Reviewing Activities

- Mostafa Adimy, Canadian Journal of Mathematics; PLOS Neglected Tropical Diseases; Journal of Mathematical Modeling of Natural Phenomena
- Olivier Gandrillon, Plos Computational Biology; Progress in Biophysics and Molecular Biology; Journal of the Royal Society Interface; Journal of theoretical biology; Systems Biology and Applications; Genes
- Vincent Calvez, Inventiones Mathematicae; Duke Math Journal; Journal of the EMS; Nature Physics; Ecology Letters
- Laurent Pujo-Menjouet, Journal of Theoretical Biology; Plos One, Plos Computational Biology; Journal of Mathematical Modeling of Natural Phenomena; Journal of Mathematical Biology; Bulletin of Mathematical Biology; Computational and applied mathematics; Mathematical Biosciences and Engineering

7.1.3. Invited Talks

- Mostafa Adimy, International Conference on Mathematical Modelling in Biomedicine, Moscow - Russia, 30 Septembre - 04 Octobre, 2019, http://eng.rudn.ru/science/conferences/9370
- Mostafa Adimy, 9ème colloque, Tendances dans les Applications Mathématiques (TAMTAM), Tlemcen - Algeria, 24 - 27 February 2019, https://tamtam2019-univ-tlemcen.weebly.com/accueil.html
- Vincent Calvez, BIOMAT Granada, Patterns in Life and Social Sciences, Granada - Spain, June 17-19, http://www.ugr.es/~kinetic/biomat/
- Vincent Calvez, Colloque d'ouverture 50 ans du Laboratoire J.L. Lions, Roscoff - France, 4-8 mars 2019 https://ljll-roscoff.sciencesconf.org
- Vincent Calvez, Journées Aussois Chaire MMB, Aussois - France, 19 - 23 May http://www.cmap.polytechnique.fr/chaire-mmb/Aussois2019.html

- Vincent Calvez, LMS Research School, PDEs in Mathematical Biology: Modelling and Analysis, ICMS, Edinburgh - UK, 29 April – 3 May 2019, https://www.icms.org.uk/LMS_PDEsmathbio.php
- Laurent Pujo-Menjouet, Mathe´matiques e´tonnantes, SMF conference, Lyon, 9 December, https://smf.emath.fr/conference-coeur

7.1.4. Leadership within the Scientific Community

- Olivier Gandrillon, Director of BioSyL, the Federative Research Structure for Systems Biology attached to University of Lyon, http://www.biosyl.org
- Thomas Lepoutre, Head of the Groupe de Recherches CNRS MAMOVI on applied mathematical modelling in Life Sciences

7.1.5. Research Administration

- Léon Tine, Membre conseil du département de Mathématiques, UCBL 1
- Léon Tine, Co-responsable de l'enseignement TMB (Techniques Mathématiques de Base) du portail PCSI, UCBL 1
- Mostafa Adimy, Comité scientifique (COS) du centre Inria Rhône-Alpes
- Mostafa Adimy, Comité scientifique (CS) de l'Institut Camille Jordan, UCBL 1
- Mostafa Adimy, Comité des thèses de l'Institut Camille Jordan, UCBL 1
- Laurent Pujo-Menjouet, Responsable de la filière mathématiques pour la biologie et la médecine pour le master M2 Maths en Actions à l'UCBL 1
- Laurent Pujo-Menjouet, Correspondant mobilité international pour le département de mathématiques à l'UCBL 1
- Laurent Pujo-Menjouet, Directeur du portail mathématiques et informatique à l'UCBL 1
- Thomas Lepoutre member of the CORDI-S commission of Inria.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

- Licence: Laurent Pujo-Menjouet, Fondamentaux des mathématiques, 138h EQTD, L1, UCBL 1
- Licence: Laurent Pujo-Menjouet, 3ème année biosciences BIM, Systèmes Dynamiques et EDP, 45h EQTD, INSA Lyon
- Licence : Léon Tine, Techniques mathématiques de base, 53h (EqTD), niveau L0, UCBL 1
- Licence : Léon Tine, Techniques mathématiques de base, 62h (EqTD), niveau L1, UCBL 1
- Licence : Léon Tine, Initiation LaTex+ stage, 12h (EqTD), niveau L3, UCBL 1
- Licence : Vincent Calvez, Cours de math pour étudiants médecins, cursus Médecine-Sciences (2e année fac de médecine), 40h, Lyon Est/Sud
- Master : Samuel Bernard, Population Dynamics, 36h ETD, M2, UCBL 1
- Master : Mostafa Adimy, Population Dynamics, 9h ETD, M2, UCBL, UCBL 1
- Master : Mostafa Adimy, Epidemiology, 21h ETD, M2, UCBL, UCBL 1
- Master: Thomas Lepoutre, préparation à l'option pour l'agrégation, 45 h eq TD, M2 UCBL 1
- Master: Laurent Pujo-Menjouet, Systèmes Dynamiques, 72 h EQTD, M1, UCBL1
- Master: Laurent Pujo-Menjouet, Systèmes complexes: modelling biology and medicine, M2, 9h EQTD, ENS-Lyon
- Master: Laurent Pujo-Menjouet, 4ème année biosciences BIM: ED-EDP, 24h EQTD, INSA Lyon
- Master: Léon Tine, Maths en action, Remise à niveau analyse, 12h (EqTD), niveau M2, UCBL 1
- Master: Léon Tine, Maths en action, épidémiologie, 18h (EqTD), niveau M2, UCBL 1

- Master: Vincent Calvez, Modèles mathématiques et analyse pour Ecologie et Evolution, 24h, niveau M2 avancé, ENS-Lyon
- Master: Olivier Gandrillon, Systems Biology, 8h, niveau M2 Génpopath, UCBL 1

7.2.2. Supervision

- PhD in progress: Aurélien Canet, "Contribution à l'étude de la quantification de la réponse d'une tumeur solide après un traitement par radiothérapie", Université Lyon, since January 2016, supervisors: Larry Bodgi, Nicolas Foray and Laurent Pujo-Menjouet
- PhD in progress: Kyriaki Dariva , "Modélisation mathématique des interactions avec le système immunitaire en leucémie myéloide chronique". Université Lyon 1, since September 2018, supervisor: Thomas Lepoutre
- PhD in progress: Ronan Duchesne, "Vers un modèle multi-échelle de la différentiation cellulaire : Application à la différentiation érythrocytaire", École normale supérieure de Lyon and Université Lyon 1, Décembre 2019, supervisors: Olivier Gandrillon and Fabien Crauste
- PhD in progress: Alexey Koshkin, "Inferring gene regulatory networks from single cell data", ENS de Lyon, since September 2018, supervisors: Olivier Gandrillon and Fabien Crauste
- PhD in progress: Paul Lemarre, "Modélisation des souches de prions". Université Lyon 1, since May 2017, supervisors: Laurent Pujo-Menjouet et Suzanne Sindi (University of California, Merced)
- PhD in progress: Léonard Dekens, "Adaptation d'une population avec une reproduction sexuée à un environnement hétérogène : modélisation mathématique et analyse asymptotique dans un régime de petite variance", Université Lyon 1, since September 2019, supervisor: Vincent Calvez.
- PhD in progress: Mete Demircigil, "Etude du mouvement collectif chez Dictyostelium Discoideum et autres espèces. Modélisation, Analyse et Simulation", ENS-Lyon, since September 2019, supervisor: Vincent Calvez.
- PhD in progress: Ghada Abi Younes, "Modélisation mathématique des maladies inflammatoires", Université Lyon, since November 2019, supervisor: Vitaly Volpert.
- PhD in progress: Elias Ventre, "Paysage et trajectoire - des réseaux de régulation génique aux trajectoires cellulaires", ENS - Lyon, since October 2019, supervisors: Olivier Gandrillons and Thibault Espinasse.
- PhD in progress: Cheikh Gueye, "Problèmes inverses pour l'estimation de paramètre de modèles mathématiques", Université Lyon, since October 2019, supervisors: Laurent Pujo-Menjouet and Léon Tine.

7.2.3. Juries

- Laurent Pujo-Menjoeu: PhD of Hugo Martin, Étude de données et analyse de modèles intégro-différentiels en biologie cellulaire, Laboratoire Jacques-Louis Lions - Sorbonne Université, examiner.
- Vincent Calvez: PhD of Pierre Roux, Équations aux dérivées partielles de type Keller-Segel en dynamique des populations et de type Fokker-Planck en neurosciences, Laboratoire de mathématiques d'Orsay - Université Paris-Sud, reviewer
- Vincent Calvez: PhD of Xiaoming Fu, Reaction-diffusion Equations with Nonlinear and Nonlocal Advection Applied to Cell Co-culture, Institut de Mathématiques de Bordeaux, Université de Bordeaux, examiner
- Olivier Gandrillon: PhD of Ronan Duchesne, Erythroid differentiation in vitro under the lens of mathematical modelling, ENS-Lyon, examiner.

7.3. Popularization

7.3.1. Articles and contents

- Laurent Pujo-Menjouet : Radio (France Inter), la tête au carré, https://www.franceinter.fr/emissions/la-tete-au-carre/la-tete-au-carre-10-mai-2019
- Laurent Pujo-Menjouet : Radio (Europe 1), Wendy Bouchard, https://www.europe1.fr/emissions/on-fait-le-tour-de-la-question-avec-wendy-bouchard/wendy-bouchard-aujourdhui-alchimie-equation-formule-magique-lamour-est-il-le-fruit-du-hasard-3905606
- Laurent Pujo-Menjouet : Radio (Québec), https://www.qub.radio/balado?id=6bb8beb9-9bb3-493f-abe3-aa7100f60a73&episode=3f6e7a5c-b11a-45ff-aa28-aa96015f517b&fbclid=IwAR2DUNgo-QvKh3z9oGeslTJOnCa3f5GzTYWlIGrYSe5hrm7ydSgc1gW6Z5g
- Laurent Pujo-Menjouet : Radio Canada, https://ici.radio-canada.ca/premiere/emissions/region-zero-8/episodes/439145/audio-fil-du-vendredi-26-juillet-2019/10
- Laurent Pujo-Menjouet : Presse écrite (L'Express), https://www.lexpress.fr/actualite/sciences/le-livre-qui-veut-modeliser-l-amour-par-les-mathematiques_2075520.html
- Laurent Pujo-Menjouet : Presse écrite (Le Figaro), http://www.lefigaro.fr/sciences/le-bonheur-conjugal-c-est-simple-comme-une-equation-differentielle-20190506
- Laurent Pujo-Menjouet : Presse écrite (Slate), http://www.slate.fr/story/178140/maths-livre-jeu-amour-hasard-laurent-pujo-menjouet
- Laurent Pujo-Menjouet : Presse écrite (Le Parisien), http://www.leparisien.fr/societe/et-si-l-amour-n-etait-pas-le-fruit-du-hasard-10-06-2019-8090055.php
- Laurent Pujo-Menjouet : Presse écrite (Montreal Gazette), https://montrealgazette.com/news/local-news/equations-can-predict-the-success-of-relationships-mathematician-says
- Laurent Pujo-Menjouet : Presse écrite (Society), http://math.univ-lyon1.fr/~pujo/Society.pdf
- Laurent Pujo-Menjouet : Presse écrite (Le matin dimanche, Suisse), https://twitter.com/lpmenjouet/status/1130474006312890373/photo/1
- Laurent Pujo-Menjouet : Presse écrite (Le journal de Montréal), https://www.journaldemontreal.com/2019/07/30/et-si-lamour-se-maintenait-avec-des-equations-mathematiques

7.3.2. Interventions

- Thomas Lepoutre: Visite de l'inria pour les stagiaires de 3e de l'ICJ (plusieurs fois dans l'année, une matinée en général).
- Thomas Lepoutre participation to MathaLyon intervention
- Laurent Pujo-Menjouet participation to "Math en Jeans", Collège-Lycée Lacassagne, Lyon and Collège Gratte-Ciel, Villeurbanne
- Laurent Pujo-Menjouet participation to "Mathématiques étonnantes, SMF conférence", Lyon
- Laurent Pujo-Menjouet participation to TEDx, Montrouge https://www.youtube.com/watch?v=xJ8wE_wmtUY

DYLISS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Member of the Conference Program Committees

- 12th international conference Semantic Web and Tools for Healthcare and Life Sciences (SWAT4HCLS) [O. Dameron]
- 19th NETTAB-BBCC joint international conference [E. Becker, O. Dameron]
- CSBio2019: The 10th International Conference on Computational Systems-Biology and Bioinformatics [A. Siegel]
- WBC@ICML 2019, ICML 2019 Workshop on Computational Biology [A. Siegel]
- CP'2019 25th International Conference on Principles and Practice of Constraint Programming [A. Siegel]
- Journée IA et santé, organisée par l'AFIA (Assoc. Fr. pour l'Intelligence Artificielle) et l'AIM (Assoc. Fr. d'Informatique Médicale) [O. Dameron]
- JOBIM 2019 [A. Siegel]

10.1.1.2. Reviewer

- Semantic Web and Tools for Healthcare and Life Sciences: O. Dameron
- Journée IA et santé: O. Dameron

10.1.1.3. Jury member

- Jury of interpretability prize of Sigmorphon shared task 2019: F. Coste

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- Journal of Biomedical Semantics [O. Dameron]
- Editor of special issue in grammatical inference of Machine Learning: [F. Coste]

10.1.2.2. Reviewer - Reviewing Activities

- Bioinformatics [A. Siegel, E. Becker]
- Biosystems [A. Siegel]
- Briefings in Bioinformatics [O. Dameron]
- IEEE/ACM TCBB [A. Siegel]
- Neuroinformatics [O. Dameron]
- Machine Learning [F. Coste]
- PLoS Computational biology [A. Siegel]

10.1.2.3. Peer Community in Genomics

In addition to the traditional publishing activities, Dyliss has also been active in the alternative approach "Peer Community in" (PCI). It is is a non-profit community of researchers who review and recommend for free (we also do it for free with traditional journals and conferences anyway), unpublished preprints in their field (i.e. unpublished articles deposited on open online archives like arXiv.org and bioRxiv.org). To a lesser extent, they may also recommend articles already published in journals.

Denis Tagu has been one of the creators of Peer Community in Genomics (PCI Genomics [More details]), which has been launched in October 2019. The scope of this PCI encompasses all aspects of genomics (structural genomics, functional genomics, epigenomics, evolutionary genomics, population genomics, proteomics, bioinformatics) dealing with every type of organisms (viruses, bacteria, fungi, plants, animals,...) as well as metagenomes.

- Denis Tagu is a manager
- Olivier Dameron is a recommender

10.1.3. Invited Talks

- Dusseldorf, Quantitative Theoretical Biology group, Heinrich Heine Universitat, february 2019 [C. Frioux]
- Colloquium J. Morgenstern (Nice), february 2019 [A. Siegel]
- IGNITE International Training Network Spring school [O. Dameron]
- Colloque d'ouverture 50 ans du Laboratoire Jacques-Louis Lions, Roscoff, march 2019 [A. Siegel]
- CNRS GdR MaDics, june 2019 [O. Dameron]
- Boolean Weekend, Burlington, US, april 2019 [A. Siegel]
- Department of Plant Science, University of Oxford, may 2019 [C. Frioux]
- Quadram Institute, may 2019 [C. Frioux]
- Network analysis to elucidate natural system dynamics, diversity and performance, CECAM Conference, Lyon, may 2019 [A. Siegel]
- Séminaire IMBAS Inra Toulouse, june 2019 [A. Siegel]
- CNRS GdR BIM, november 2019 [O. Dameron]
- The 10th International Conference on Computational Systems-Biology and Bioinformatics (CSBio 2019) [N. Théret] Nice (France) December 4 to 7, 2019

10.1.4. Leadership within the Scientific Community

- Member of the steering committee of the International Conference on Grammatical Inference [F. Coste]

10.1.5. Scientific Expertise

10.1.5.1. International expertise

- Luxembourg, FNR. Core program [A. Siegel]

10.1.5.2. Prospective working groups

- "Big & Open Data en recherche à l'horizon 2040" foresight working group of PROSPER network [F. Coste]

10.1.5.3. National responsibilities

- **Institutional boards for the recruitment and evaluation of researchers**.
  - National Council of Universities, section 65 [O. Dameron, nominated member].
- **Recruitment committees**.
  - Inria Senior Researchers [national committee, A. Siegel]
  - Assistant professor in Mathematics for Biology, section 26, Univ Rennes 1 [E. Becker]

10.1.5.4. National scientific boards

- Animation of the Systems Biology working group of national infrastructure GDR IM and GDR BIM [A. Siegel].
- Board of directors of the French Society for biology of the extracellular matrix [N. Théret].

10.1.5.5. Local responsibilities

- Scientific Advisory Board of Biogenouest [N. Théret]
- Delegate to research integrity at the University of Rennes 1 [N. Théret]
- Head of the "Data and Knowledge Managment" Department (6 teams) of the IRISA lab [A. Siegel, since june 2019]
- IRISA laboratory (computer science department of Univ. Rennes 1) council [A. Siegel, until june 2019]
- Member of the Inria Rennes center council [J. Got]
- Responsability of the IRISA laboratory "Health-biology" cross-cutting axis [O. Dameron, until June 2019] [More details]
- Social commitee of Univ. Rennes 1 [C. Belleannée]
- Scientific committee of Univ. Rennes 1 school of medicine [O. Dameron, A. Siegel].
- Emergency aid commission of Univ. Rennes 1 & Rennes2 [C. Belleannée]

10.1.6. Research Administration

10.1.6.1. Inria Instances

- Inria National evaluation board [A. Siegel, nominated member].
- Equality and diversity Committee, Inria - Responsible of the working group focusing on recruitment procedures [A. Siegel].

10.1.6.2. CNRS

- Chargée de mission "bioinformatique" at INS2I-CNRS (Institute for Computer Science of CNRS) [A. Siegel, nominated member].

10.1.6.3. Inria local instances

- Gender equality commission, IRISA & Inria Rennes [A. Siegel, coordinator]
- CUMI (Comission des utilisateurs des moyens informatiques) of Inria Rennes [F. Coste]
- Inria Rennes PhD recruitment (CORDIs) [C. Belleannée]

10.2. Teaching - Supervision - Juries

10.2.1. Teaching track responsibilities

- Coordination of the doctoral school "Biology and Health" of University of Bretagne Loire, Rennes Site 1 [N. Théret]
- Coordination of the master degree "Bioinformatics", Univ. Rennes1 [E. Becker, O. Dameron]

10.2.2. Course responsibilities

- "Method", Master 2 in Computer Sciences, Univ. Rennes 1 [E. Becker]
- "Statistiques appliquées", 3rd year in Fundamental Computer Sciences, ENS Rennes [E. Becker]
- "Introduction to computational ecology", Master 2 in Ecology, Univ. Rennes 1 [E. Becker]
- "Object oriented programming", Master 1 in Bioinformatics, Univ. Rennes 1 [E. Becker]
- "Advanced R for data analysis", Master 1 in Ecology + Master 1 in Bioinformatics, Univ. Rennes 1 [E. Becker]
- "Insertion Professionnelle et tables rondes", Master 1 and Master 2 in Bioinformatics, Univ. Rennes 1 [E. Becker]
- "Atelier de Biostatistiques", 2nd year Biology, Univ Rennes 1 [E. Becker]
- "Internship", Master 1 in Computer Sciences, Univ. Rennes 1 [C. Belleannée]
- "Supervised machine learning", Master 2 in Computer Sciences, Univ Rennes 1 [F. Coste]

- "Atelier bioinformatique", Licence 2 informatique, Univ. Rennes 1 [O. Dameron]

- "Bioinformatique pour la génomique", 2nd year school of medicine, Univ. Rennes 1 [O. Dameron]

- "Bases de mathématiques et probablité", Master1 in public health, Univ. Rennes 1 [O. Dameron]

- "Programmation en Python", Master 1 in Public Health, Univ. Rennes 1 [O. Dameron]

- "Intégration: Remise à niveau en informatique", Master 1 in bioinformatics, Univ. Rennes 1 [O. Dameron]

- "Programmation impérative en Python", Master 1 in bioinformatics, Univ. Rennes 1 [O. Dameron]

- "Semantic Web and bio-ontologies", Master 2 in bioinformatics, Univ. Rennes 1 [O. Dameron]

- "Internship", Master 2 in bioinformatics, Univ. Rennes 1 [O. Dameron]

- Master: A. Siegel, Integrative and Systems biology, Master 2 in bioinformatics, Univ. Rennes 1 [A. Siegel]

- Micro-environnement Cellulaire normal & pathologique, Master 2 in Biologie cellulaire et Moléculaire, Univ. Rennes 1 [N. Théret]

10.2.3. Teaching

Licence : E. Becker, "TPs Python", 12h, 1st year in Biology, Univ. Rennes 1, France

Licence : E. Becker, "Atelier de Biostatistiques", 34h, 2nd year in Biology, Univ. Rennes 1, France

Licence : E. Becker, "Statistiques Appliquées", 20h, 3rd year in Fundamental Computer Sciences, ENS Rennes, France

Master : E. Becker, "Object oriented programming", 43h, Master 1 in Bioinformatics, Univ. Rennes 1, France

Master : E. Becker, "Advanced R for data analysis", 34h, Master 1 in Bioinformatics, Univ. Rennes 1, France

Master : E. Becker, "Introduction to computational ecology", 34h, Master 2 in Ecology, Univ. Rennes 1, France

Master : E. Becker, "Method", 15h, Master 2 in Computer Sciences, Univ. Rennes 1, France

Master : E. Becker, "Insertion Professionnelle et tables rondes", 8h, Master 1 and Master 2 in Bioinformatics, Univ. Rennes 1, France

Master : E. Becker, "Systems Biology : biological netorks", 27h, Master 2 in Bioinformatics, Univ. Rennes 1, France

Licence: C. Belleannée, Langages formels, 20h, L3 informatique, Univ. Rennes1, France.

Licence: C. Belleannée, Projet professionnel et communication, 16h, L1 informatique, Univ. Rennes1, France.

Licence: C. Belleannée, Enseignant référent, 20h, L1 informatique, Univ. Rennes1, France.

Licence: C. Belleannée, Spécialité informatique : Functional and immutable programming , 42h, L1 informatique, Univ. Rennes1, France

Master: C. Belleannée, Algorithmique du texte et bioinformatique, 10h, M1 informatique, Univ. Rennes1, France

Master: S. Blanquart, Juries of Master 1 in bioinformatics, 5h, Univ. Rennes 1, France

Master: L. Bourneuf, Projet, 25h, M1 Santé Publique, France.

Master: F. Coste, Supervised machine learning, 20h, M2 + M1 Science Informatique, Univ. Rennes, France

Licence: O. Dameron, Biostatistiques, 12h, 1st year school of medicine, Univ. Rennes 1, France

Licence: O. Dameron, "Atelier bioinformatique", 12h, Licence 2 informatique, Univ. Rennes 1, France

Master: O. Dameron, "Intégration: Remise à niveau en informatique", 18h Master 1 in bioinformatics, Univ. Rennes 1, France

Master: O. Dameron, "Programmation impérative en Python", 985h Master 1 in bioinformatics, Univ. Rennes 1, France

Master: O. Dameron, "Système informatique GNU/Linux", 10h, Master 1 in bioinformatics, Univ. Rennes 1, France

Master: O. Dameron, 5h, "Internship", Master 1 in bioinformatics, Univ. Rennes 1, France

Master: O. Dameron, "Bases de mathématiques et probablité", 9h, Master1 in public health, Univ. Rennes 1, France

Master: O. Dameron, "Programmation impérative en Python (2)", 3h Master 1 in public health, Univ. Rennes 1, France

Master: O. Dameron, 20h, "Semantic Web and bio-ontologies", Master 2 in bioinformatics, Univ. Rennes 1, France

Master: O. Dameron, 15h, "Internship", Master 2 in bioinformatics, Univ. Rennes 1, France

Licence: N. Guillaudeux, Projet professionnel et communication, 16h, 1st year Computer Science, Univ. Rennes 1, France

Licence: N. Guillaudeux, "TPs Python", 36h, 1st year in Biology, Univ. Rennes 1, France

Licence: M. Louarn, Introduction à la BioInformatique, 6h, L2 Informatique, Univ. Rennes 1, France.

Licence: M. Louarn, Informatique, 10h, L1 Physique Chimie, Univ. Rennes 1, France.

Master: M. Louarn, Informatique Médicale Avancée, 2h, M1 Médecine, Univ. Rennes 1, France.

Master: M. Louarn, Object-oriented programming, 25h, M2 bioinformatique et génomique, Univ. Rennes 1, France.

Master: M. Louarn, Jury de stage, 6h, M1 bioinformatique et génomique, Univ. Rennes 1, France.

10.2.4. Supervision

PhD: Yann Rivault, *Analyse de trajectoires de soins à partir de bases de données médico-administratives : apport d'un enrichissement pas des connaissances biomédicales issues du Web des Données*, defended 28th January 2019, supervised by O. Dameron and N. Lemeur [64].

PhD: Lucas Bourneuf, *A search space of graph motifs for graph compression: From Powergraphs to triplet concepts*, defended 17th december 2019, supervised by J. Nicolas [12].

PhD in progress: Johanne Bakalara, *Temporal models of care sequences for the exploration of medico-administrative data*, started in Oct. 2018, supervised by T. Guyet (Lacodam), E. Oger (Repères) and O. Dameron.

PhD in progress: Arnaud Belcour, *Inferring Model metabolisms for bacterial ecosystems reduction*, started in Oct. 2019, supervised by A. Siegel and S. Blanquart.

PhD in progress: Mael Conan, *Predictive approach to assess the genotoxicity of environmental contaminants during liver fibrosis*, started in Oct. 2017, supervised by S. Langouet and A. Siegel.

PhD in progress: Olivier Dennler, *Modular functional characterization of ADAMTL and ADAMTSL protein families*, started in Oct. 2019, supervised by N. Theret, F. Coste and S. Blanquart.

PhD in progress: Nicolas Guillaudeux, *Compare gene structures to predict isoform transcripts*, started in Oct. 2018, supervised by O. Dameron, S. Blanquart and C. Belleannée.

PhD in progress: Virgilio Kmetzsch *Multi-modal analysis of neuroimaging and transcriptomics data in genetically-induced fronto-temporal dementia*, started in Oct. 2019, supervised by E. Becker and O. Colliot (Inria Aramis, ICM Paris)

PhD in progress: Marine Louarn, *Intégration de données génomiques massives et hétérogènes, application aux mutations non-codantes dans le lymphome folliculaire*, started in Oct. 2017, supervised by A. Siegel, T. Fest (CHU) and O. Dameron.

PhD in progress : Hugo Talibart, Learning grammars with long-distance correlations on proteins, started in Nov. 2017, supervised by F. Coste and J. Nicolas.

PhD in progress : Pierre Vignet, *Identification et conception expérimentale de nouveaux agents thérapeutiques à partir d'un modèle informatique des réseaux d'influence du TGF-β dans les pathologies hépatiques chroniques* , started in Dec. 2018, supervised by N. Théret and A. Siegel.

PhD in progress : Méline Wéry, *Methodology development in disease treatment projects.* , started in Oct. 2017, supervised by E. Becker, C. Bettembourg (Sanofi), O. Dameron, and A. Siegel.

10.2.5. *Juries*

- Referee of PhD thesis: Aarón Ayllón-Benítez, Univ. Bordeaux [O. Dameron] - A. Beica, ENS [A. Siegel, president] - F. Bridoux, Marseille [A. Siegel] - C. Hernandez, ENS [A. Siegel, president]

- Member of PhD thesis juries: Sandeep Manandhar, Univ. Rennes [O. Dameron] - A. Husson, Paris Diderot [A. Siegel] - Arran Hodgkinson, Univ. Montpellier [N. Théret]

- Referee of habilitation thesis: Fleur Mougin, Univ. Bordeaux [O. Dameron] - S. Peres, Orsay [A. Siegel]

- Member of habilitation thesis juries: Adrien Coulet, Univ. Lorraine [O. Dameron] - L. Calzone [A. Siegel, president]

10.2.6. *Interns*

- Internship, from Jan 2019 until Jun 2019. Supervised by O. Dameron and O. Corby (Wimmics team, Sophia-Antipolis) . Student: Antoine Abel (Master 2 bioinformatique, Univ. Rennes 1). Subject: Faster SPARQL federated queries [31]

- Internship, from Jan 2019 until Jun 2019, Supervised by O. Dameron and A. Duchene (Theranexus). Student: Pierre Beaudier (Master 2 bioinformatique, Rennes). Subject: Evaluation of the public databases' relevance as comprehensive tools for pharmalogical mechanisms [32]

- Internship, from Jan 2019 until Jun 2019, Supervised by E. Becker, Fabrice Legeai (IGEPP) and Julien Bobe (LPGP). Student: Fanny Casse (Master 2 bioinformatique, Rennes). Subject: MiRNA regulating genes responsible for fertility and early embryonic development in the Medaka fish [35].

- Internship, from April 2019 until July 2019, Supervised by P. Dabert (IRSTEA), A. Siegel and S. Blanquart. Student: Theo Combe (Master 1 bioinformatique, Rennes). Subject: Reconstructing metabolic pathways of methanogenic communities using metabarcoding data

- Internship, from May 2019 until Jun 2019, Supervised by F. Coste. Student: Arthur Correnson (Licence math-informatique, Université Paul Sabatier, Toulouse). Subject: Implementation of a new partial local multiple alignment algorithm.

- Internship, from Jan 2019 until Jun 2019, Supervised by F. Coste, N. Théret, S. Blanquart, C. Belleannée. Student: Olivier Dennler (Master 2 bioinformatique, Rennes). Subject: Functional module characterization of ADAMTS / ADAMTSL protein family [37]

- Internship, from Jan 2019 until Jun 2019, Supervised by A. Siegel. Student: Clara Emery (Master 2 bioinformatique, Rennes). Subject: Modeling of quorum sensing system by in silico approaches

- Internship, from May 2019 until Oct 2019, Supervised by E. Becker and G. Rabut (IGDR, Rennes). Student: Camille Juigne (ENSSAT, Lannion). Subject: Data integration and formal analysis of the network between ubiquitination enzymes.

- Internship, from Jan 2019 until Jun 2019, Supervised by F. Morrews. Student: Albane Lysiak (Master 2 bioinformatique, Rennes). Subject: Exploiting paralog genes for discovering genetic regulation by transcription factors.

- Internship, from Jul 2019 until Aug 2019, Supervised by C. Belleannée and N. Guillaudeux. Student: Pierre Alexis Odye (Master 1 informatique, Rennes). Subject: Design of a database on known and predicted transcriptomics data in humans, mice and dogs.
- Internship, from Jul 2019 until Aug 2019, Supervised by E. Becker and F. Moreews. Student: Hugo Simon (1st year Telecom Paris Tech). Subject: Large scale analysis of metabolic networks as biological graphs.
- Internship, from Jun 2019 until Jul 2019, Supervised by A. Siegel and R. Andonov. Student: Kerian Thuillier (ENS Rennes). Subject: Linear programming for metabolic network completion [41]
- Internship, from Jan 2019 until Jul 2019, Supervised by C. Frioux. Student: Margot Wagner (Master 2 écologie, Rennes). Subject: Discriminant analysis of transcriptomics and metagenomics of an alga and its microbiota in multiple culture conditions with genome-scale modelling.

10.3. Popularization

10.3.1. Interventions

- "J'peux pas j'ai informatique", Welcoming of high-school students to leverage stereotypes about computer sciences (110 participants), Apr. 2019 [O. Dameron, A. Siegel]
- "Elles codent Elles créent" Our Ph-D students have been involved in creative Python learning sessions for female students in two high-schools. [M. Louarn, M. Wéry, A. Siegel]
- Operation DECLIC (Dialogues Entre Chercheurs et Lycéens pour les Intéresser à la Construction des Savoirs). Lycée Descartes, Rennes. Nov 2019 [More details] [N. Théret, M. Conan, P. Vignet, O. Dennler]

10.3.2. Internal action

- Organization of the weekly seminar "Symbiose", involving teams DYLISS, GENSCALE and GENOUEST: [S. Blanquart]

10.3.3. Creation of media or tools for science outreach

Science en Cour[t]s (*http://sciences-en-courts.fr/*) Many of our current and former PhD students (M.Wéry, L. Bourneuf, A. Antoine-Lorquin, C. Bettembourg, J. Coquet, V. Delannée, G. Garet, S. Prigent) have been heavily involved in organization of a local Popularization Festival where PhD. students explain their thesis via short movies. The movies are presented to a professional jury composed of artists and scientists, and of high-school students. Previous years films can be viewed on the festival web-site [More details]

EMPENN Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Camille Maumet was chair of the Open Science Special Interst Group of the Organisation of Human Brain Mapping. https://www.humanbrainmapping.org/m/pages.cfm?pageid=3712
- Giulia Lioi was chair of a Scientific Symposium during the conference of Organisation of Human Brain Mapping, 2019 : "Multimodal Neurofeedback: The next generation of neurofeedback for advanced brain self-regulation"
- Brainhack Global Rennes 2019: https://brainhack.irisa.fr, November 14-15, Rennes, France (Julie Coloigner, Emmanuel Caruyer and Raphael Truffet).
- Christian Barillot is member of the Board of Directors of IPMI conference series (Information Processing in Medical Imaging)
- Camille Maumet is a member of the "Comité national pour la Science Ouverte (CoSO)" Working group of open software led by Roberto Di Cosmo.
- Camille Maumet is a member of Aperture, a new publishing plateform, working group "workflows" led by Peter Bandettini.

10.1.1.2. Member of the Organizing Committees

- Brainhack Global Rennes 2018: https://brainhack.irisa.fr, May 25-26, Rennes, France (Julie Coloigner, Emmanuel Caruyer and Raphael Truffet).
- ARSEP workshop on multiple sclerosis, Feb 2, ICM (Élise Bannier).
- Élise Bannier is founding member of the REMI network for mutual aid in MRI studies (https://remi.network/) to facilitate setup and quality control of multicenter studies and share expertise between centers, with two meetings organized this year in Strasbourg and Paris.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Emmanuel Caruyer has been a program committee member of the MICCAI CDMRI workshop since 2013.
- Camille Maumet is a member of programm committee of INCF Neuroinformatics 2019 https://www.neuroinformatics2019.org/, September 1-2, Warsaw, Poland.
- Camille Maumet is member of Program Commitee: GEANT workshop: https://neuroinfo.fr/#!/workshops/geant2019, May 21, Marseille, France

10.1.2.2. Reviewer

- IEEE International Symposium on Biomedical Imaging (Emmanuel Caruyer, Olivier Commowick, Julie Coloigner)
- MICCAI (Olivier Commowick, Francesca Galassi)
- Workshop on Biomedical Image Registration (Olivier Commowick)
- Annual congress of the Organisation of Human Brain Mapping (Camille Maumet)
- ESMRMB (Élise Bannier)

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Camille Maumet is member of Editorial Boards of Neuroinformatics
- Christian Barillot is Chief editor of Frontier in Computer science.

10.1.3.2. Reviewer - Reviewing Activities

- NeuroImage (Emmanuel Caruyer, Camille Maumet, Pierre Maurel)
- Medical Image Analysis (Emmanuel Caruyer)
- IEEE TMI (Olivier Commowick)
- Neuroinformatics (Julie Coloigner)
- Med Image Anal (Olivier Commowick, Emmanuel Caruyer, Christian Barillot)
- Scientific Data (Camille Maumet)

10.1.4. Invited Talks

- Emmanuel Caruyer,"Nouveaux enjeux pour l'acquisition d'IRM de diffusion pour la microstructure" ; Journée Nouvelles Imageries INS2I ; December 2019; Lyon."
- Corentin Vallée, "Arterial Spin Labeling, Resting-State and Acquisition duration", Brainnetome center, Institute of Automation, Chinese Academy of Science, Beijing; June 11, 2019
- Corentin Vallée, "Arterial Spin Labeling, Resting-State and Acquisition duration", Brainnetome center, Institute of biophysics, Chinese Academy of Science, Beijing; June 25, 2019
- Giulia Lioi, "EEG-fMRI integration for Neurofeedback", Diagnosis and International Adaptive Imaging (IADI) Laboratory, Nancy, France; September 2019.
- Giulia Lioi, "Multimodal Neurofeedback for Stroke Rehabilitation", 4eme Journee Nationale Neurofeedback Evaluation and Training (NEXT),Bordeaux, France, May 2019.
- Giulia Lioi "Integrating EEG and fMRI for Neurofeedback", Conference Gen2Bio, Biogenouest, Angers, France, May 2019.
- Pierre-Yves Jonin, "Statistiques appliquées en psychométrie. Journées scientifiques de rééducation cognitive chez l'enfant", Lyon, June 14, 2019.
- Pierre-Yves Jonin, "Les méthodes psychométriques pour le cas unique:", Journée de formation de l'Association des Neuropsychologues en Drôme & Ardèche; Valence, France, November 22, 2019.
- Pierre Maurel, "Medical Image Processing: MRI and Brain", seminar at the Mechatronics Department of ENS-Rennes.
- Élise Bannier, "Multi-center (mono-vendor) longitudinal conventional and quantitative spinal cord MRI at 3 Tesla", Spinal Cord Workshop, UCL, London, January 21, 2019.

10.1.5. Leadership within the Scientific Community

- Emmanuel Caruyer: Member (by selection) of the "Bio Imaging and Signal Processing" (BISP) Technical Committee of the IEEE Signal Processing Society (Emmanuel Caruyer).
- Élise Bannier: Elected Member of the French Society for MRI (SFRMBM), starting in Jan 2020 for 6 years.

10.1.6. Scientific Expertise

- Expertise as a reviewer for "Agence Nationale de la Recherche" (ANR) (Emmanuel Caruyer)
- Élise Bannier: HCERES Evaluation Committees of the CERCO and TONIC units in Toulouse as expert, representing the research support staff.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

L2 informatique: Raphaël Truffet, Génie Logiciel, 24h and Complexity, 18h, L2, ISTIC, France,

L2 informatique: Raphaël Truffet, Génie Logiciel, 40h, L2, ISTIC, France

ENS Rennes: Raphaël Truffet, Algorithmic (20h)

L2 biologie: Antoine Legouhy, Bio-statistques 34h, L2, Univ. Rennes 1, France.

M1 mathématiques: Antoine Legouhy, Optimisation 12h, M1, Univ. Rennes 1, France.

M1 biologie: Antoine Legouhy, statistiscs 12h, M1, Univ. Rennes 1, France.

Master SIBM, M2, University of Angers-Brest-Rennes, France.

L1 INF1: Francesca Galassi, Functional and Immutable Programming (Scala) (TP : 40h), L1, ISTIC University of Rennes 1, France.

L3 bioinformatique: Corentin Vallée, Statistics, 32h, University of Rennes 1, France.

Master SIBM: Benoit Combès, Statistics (TD, TP: 12h), University of Angers-Brest-Rennes:

- Emmanuel Caruyer, "Introduction to diffusion MRI" (Plenary: 3h).
- Benoit Combès, "Méthodes de recalage linéaire et non-linéaires" (Plenary: 6h)
- Quentin Duché, "Traitements des données d'IRM fonctionnelle" (Plenary: 1h).
- Isabelle Corouge, "Bio-marqueurs d'imagerie et IRM metabolique et fonctionnelle" (Plenary: 3h).
- Camille Maumet, "Imaging processing pipelines" (Plenary: 3h).
- Élise Bannier, "IRM fonctionnelle BOLD" (Plenary: 1h).
- Benoit Combès, "Méthodes statistiques pour le traitement d'image" (Plenary: 3h).
- Claire Cury, "Evaluation des performances en imagerie me´dicale" (Plenary: 3h). item Julie Coloigner, "Méthodes d'analyse de la connectivité cérébrale" (Plenary: 3h).

Master 2 "Langage Cognition et Apprentissage: Pierre-Yves Jonin,"Méthodologie clinique & psychométrique de l'étude de cas" (4h); Université de Poitiers, February 2019

DIU Sémiologie des démences: Pierre-Yves Jonin, "Diagnostic précoce de la maladie d'Alzheimer: contribution neuropsychologique" (4h); Université de Caen Basse Normandie, March 2019

Master 2 Neuropsychologie: Pierre-Yves Jonin, "Apports et limites du bilan neuropsychologique à visée diagnostic dans les syndromes démentiels" (3,5h); Université de Savoie à Chambéry, March 2019

Licence 3 Psychologie, UES Handicap: Pierre-Yves Jonin "Déficit mnésique et handicap invisible. Détection en neuropsychologie" (8 h); Université de Rennes 2, February 2019

Master 2 Psychologie spécialité handicap: Pierre-Yves Jonin "Neuropsychologie clinique du sujet âgé" (10 h); Université de Rennes 2, January-April 2019

Medicine (4th & 5th year) UE Psychologie et Neurobiologie: Pierre-Yves Jonin,L'exploration neuropsychologique des maladies neurologiques et psychiatriques. 4ème & 5ème année de médecine (4h), Université de Brest, France.

Licence 3 de Psychologie: Pierre-Yves Jonin, Les syndromes neuropsychologiques. L3, (16h); Université de Rennes 2, France

Master 2 "Troubles de la Cognition et du Langage": Pierre-Yves Jonin, Evaluation neuropsychologique à visée diagnostique. Le cas des syndromes démentiels. Master 2 (2 x 6h) Université de Poitiers, France.

Master 2 Neurosciences Cliniques: Pierre-Yves Jonin, "La mémoire humaine" (3h); Université de Rennes 1, novembre 2019

IUT St-Malo: Mathis Fleury, statistics (64); 2019

Licences 2 & 3 Biologie: Xavier Rolland, "Introduction aux Biostatistiques" 1 (TP sur R: 64h), Université de Rennes 1

ESIR: Pierre Maurel, General image processing (60h), Algorithmics and complexity (60h), Medical imaging (60h), École Supérieure d'Ingénieur de Rennes (ESIR).

ENS Rennes: Pierre Maurel, Introduction to image processing (24h)

10.2.2. Supervision

10.2.2.1. PhD & HdR

HDR: Olivier Commowick, "Compartments imaging for the characterization of brain diseases from quantitative MRI", Univ. Rennes 1, defended on June 19, 2019, jury: Isabelle Bloch - Professeur, Telecom Paristech, Sébastien Ourselin - Professeur, King's College London, Jean-Philippe Thiran - Professeur, Ecole Polytechnique Fédérale de Lausanne, Christian Barillot - DR CNRS, Equipe Empenn, Alexander Leemans - Associate Professor, UMC Utrecht and Xavier Pennec - DR Inria, Equipe Epione[1].

PhD: Anne-Claire Binter, "Effects of prenatal exposure to neurotoxicants on the child's brain function evaluated by cerebral imaging", defended on December 4, 2019, Univ. Rennes, Élise Bannier.

PhD: Cédric Meurée, "Arterial spin labelling : quality control and super-resolution", defended on March 25, 2019, Univ. Rennes, Pierre Maurel, Christian Barillot.

PhD: Haykel Snoussi, "Population imaging and diffusion MRI for characterizing multiple sclerosis in the human spinal cord.", defended on May 2, 2019, Univ. Rennes, Christian Barillot and Emmanuel Caruyer[3].

PhD in progress: Antoine Legouhy, "Longitudinal brain altas creation, application to development studies", CNRS, from Nov 2016, Defence planned for February 2020, Christian Barillot, François Rousseau, Olivier Commowick.

PhD in progress: Corentin Vallée, "Joint estimation of neuronal activation, resting-state and basal metabolism from Arterial Spin Labeling", Univ. Rennes, from Nov 2016, Christian Barillot, Isabelle Corouge, Pierre Maurel.

PhD in progress: Xavier Rolland, "Modeling analytic variability in brain imaging", CNRS, from Oct 2018, Christian Barillot, Camille Maumet.

PhD in progress: Raphaël Truffet, "Compressed sensing for microstructure-enabled diffusion MRI", Univ. Rennes / ENS Rennes, from Oct 2018, Christian Barillot, Emmanuel Caruyer.

PhD in progress: Giovanna Orrù, "Modeling brain structural and functional connectivity ", Univ. Rennes, from Oct 2019, Julie Coloigner and Christian Barillot.

PhD in progress: Stéphanie Leplaideur, "Equilibre de la rééducation par vibrations cervicales, adaptation prismatique et association aux deux techniques, chez des patients cérébro-lésés droits– Protocole AVC POSTIM " , started in October 2018, Isabelle Bonan, Élise Bannier.

10.2.2.2. Other supervisions

Master student SIF (Master mention Informatique, parcours Science informatique): Antoine Ackaouy, "Deep learning for segmentation of MS lesions from multimodal MRI", Apr-Oct 2018, Francesca Galassi.

3-months visit: Gregory Kiar, PhD student, "Analytical Stability in fMRI" April-June 2019, Camille Maumet in collaboration with Elisa Fromont (LACODAM, Inria Rennes / IRISA).

Co-supervised project : Alexander Bowring, "Exploring the Impact of Analysis Software on Task fMRI Results" 2019, Camille Maumet in collaboration with Thomas Nichols (LACODAM, Inria Rennes / IRISA).

Co-supervised project : Freya Acar, Best practices reporting for fMRI meta-analysis 2019, Camille Maumet in collaboration with Beatrijs Moerkerke (LACODAM, Inria Rennes / IRISA).

M1 Physique Médicale student: Marion Boulanger, "Evaluation of QC procedures at Neurinfo and optimisation".

L3 ESIR Ingénierie Biomédicale student: Chloé Mercier, "Implementation of a Java tool to perform MR Quality Control on a Eurospin test object".

10.2.3. Juries

- Emmanuel Caruyer. PhD committee: Yann Bihan-Poudec, Université Claude Bernard Lyon 1; December 17, 2019.

- Olivier Commowick. PhD committee: Junhao Wen, "Structural and microstructural neuroimaging for diagnosis and tracking of neurodegenerative diseases", Sorbonne Université; July 4, 2019, PhD supervisors: Olivier Colliot et Stanley Durrleman.

- Olivier Commowick. MD thesis committee: Charlotte Laurent "Intérêt pronostique de l'IRM en tenseur de diffusion dans les neuropathies optiques inflammatoires", Université de Rennes 1; Octobre 25, 2019.

- Olivier Commowick. PhD committee: Christian El Hajj "Estimation et classification des temps de relaxation multi-exponentiels en IRM. Application aux tissus ve´ge´taux.", Ecole centrale Nantes; December 16, 2019, PhD supervisors: Guylaine Collewet and Maja Musse.

10.3. Popularization

10.3.1. Brain awareness week: "Semaine du Cerveau"

Empenn team took part in Brain awareness week 2019. Giulia Lioi, Claire Cury and Élise Bannier coordinated this event for Empenn/Neurinfo.

- Camille Maumet and Christian Barillot: Talk "" Le cerveau numérique: explorons-le!"". March 2019, Rennes, France.

- Quiz on brain imaging, March 2019, Rennes, France.

- Lab visits for students (3e and 1ere S) about MRI, functional MRI, EEG and neurofeedback, and image processing.

- Pierre-Yves Jonin: Talk "Entre connaissances et souvenirs : voyage en terre mnésique", March 2019, Rennes, France

10.3.2. Journée Science et Musique (JSM)

This event was initiated in 2010 by IRISA. The idea is to offer a scientific and festive immersion in the research and new technologies of the music of neurosciences and sounds to the general public. Free workshops, conferences, demonstrations and concerts are available to all throughout the day (for more detail see https://jsm.irisa.fr/). Claire Cury organized the event this year with Nancy Bertin, PANAMA team.

10.3.3. Sciences en Cour[t]s

This event is a festival of short movies, which offers doctoral students the opportunity to make short films about their thesis work. Raphael Truffet, Antoine Legouhy and Xavier Rolland won the high school award https://www.youtube.com/watch?v=IKgqv-iCwak.

10.3.4. "J'peux pas j'ai informatique"

"J'peux pas j'ai informatique" is an outreach program to welcome secondary school students for a day at Inria Rennes / IRISA and introduce them to the various facets of computer science. Camille Maumet and Pierre Maurel helped out to run the hands-on tutorials in which students could learn how a computer works without computers.

10.3.5. Other interventions

- Pierre-Yves Jonin: Series of 2 talks on neuropsychology, Universités du Temps Libre de Bretagne, Jan-Dec, Rennes, France.

10.3.6. Education

- L codent L créent - An outreach program to send PhD students to teach Python to middle school students in 8 sessions of 45 minutes. Camille Maumet is a co-organizer of the local version of this program, initiated in Lille. The program is currently supported by: Fondation Blaise Pascal, ED MathSTIC, Inria and Fondation Rennes 1.

EPIONE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. General Chair, Scientific Chair

- X. Pennec organized the Geometric Statistics workshop in Toulouse from August 30 to September 5 2019, in the framwork of the Associated team GeomStats with Stanford, the ERC G-Statistics and the thematic semester "Statistics with Geometry and Topology" of the CIMI Labex of Toulouse. The workshop featured 6 hours courses by Susan Holmes and Xavier Pennec and talks by Nina Miolane and Yann Thanwerdas.
- N. Ayache organized the scientific program of the conference "The Académie des Sciences in Nice and Sophia Antipolis" in June 20-21 2019.

9.1.2. Member of the Organizing Committees

- X. Pennec was a co-chair of the MICCAI 2019 Workshop on Mathematical Foundations of Computational Anatomy (MFCA 2019), which was held in Shenzen in October 2019 [57].
- M. Sermesant was a co-chair of the MICCAI 2019 Workshop Statistical Atlases and Computational Models of the Heart (STACOM 2019), which was held in Shenzhen, October 2019.
- H. Delingette co-organized the meeting on "Digital Sciences & Technologies" on April 3rd as well as the meeting on "Digital Sobriety" on Dec. 2nd as part of the scientific animation of the UCA Academy of Excellence on Digital Sciences. He was also member of the organizing committee of the 2019 SophIA summit in Sophia Antipolis that was held in Sophia Antipolis from Nov. 20-22nd.

9.1.3. Scientific Events Selection

9.1.3.1. Member of the Conference Program Committees

- X. Pennec was a program committee member and session chair of the Geometric Sciences of Information conference GSI' 2019 at ENAC in Toulouse.

9.1.3.2. Reviewer

- M. Lorenzi was a reviewer for the conferences Neural Information Processing Systems (NeurIPS 2019), International Conference on Machine Learning (ICML 2019), Medical Image Computing and Computer Aided Intervention (MICCAI 2019), International Conference on Learning Representations (ICLR 2020), Information Processing in Medical Imaging (IPMI 2019).
- M. Sermesant was a reviewer for Medical Image Computing and Computer Aided Intervention (MICCAI 2019), the MICCAI workshop STACOM and the Computing in Cardiology conference.
- X. Pennec was a reviewer for Medical Image Computing and Computer Aided Intervention (MICCAI 2019) and for Information Processing in Medical Images (IPMI 2019), the 35th Annual Symposium on Computational Geometry (CG Week 2019).
- H. Delingette was a reviewer for the International Symposium on Biomedical Imaging (ISBI'19), the international conference on computer-aided interventions (IPCAI'19), the International Conference on Computer Vision and Pattern Recognition (CVPR 2019).

9.1.4. Journal

9.1.4.1. Member of the Editorial Boards

- H. Delingette is a member of the editorial board of the journal Medical Image Analysis (Elsevier).

- M. Lorenzi is a member of the editorial board of the journal Scientific Reports (Nature Publishing Group); he is also member of the Board of Statisticians of the Journal of Alzheimer's Disease (IOS Press).

- X. Pennec is a member of the editorial board of the journal Medical Image Analysis (MedIA, Elsevier), of the International Journal of Computer Vision (IJCV, Springer), and of the Journal of Mathematical Imaging and Vision (JMIV, Springer).

- N. Ayache is the co-founder and the Co-Editor in Chief with J. Duncan (Professor at Yale) of Medical Image Analysis journal. This scientific journal was created in 1996 and is published by Elsevier.

- N. Ayache is a member of the editorial board of the following journals: Medical Image Technology (Japanese journal) and Journal of Computer Assisted Surgery (Wiley).

- I. Strobant is editorial coordinator for Medical Image Analysis, Elsevier (since october 2001).

9.1.4.2. Reviewer - Reviewing Activities

- M. Lorenzi was a reviewer for the following journals: Neurobiology of Aging, Alzheimer's and Dementia, Journal of Alzheimer's Disease, Medical Image Analysis, IEEE Transactions on Medical Imaging, NeuroImage, International Journal of Computer Vision, Journal of Mathematical Image and Vision, Scientific Reports.

- X. Pennec was a reviewer for the Journal of Computational Dynamics, Annals of Statistics, Communications in Statistics - Simulation and Computation, Linear Algebra and its Applications, Information geometry, Medical Image Analysis, IEEE Transactions on Medical Imaging.

- M. Sermesant was a reviewer for the following journals: Journal of Machine Learning Research, Journal of the American College of Cardiology, IEEE Transactions on Medical Imaging, IEEE Transactions on Biomedical Engineering, Medical Image Analysis and Computers in Biology and Medecine.

- H. Delingette was a reviewer for the following journals: Medical Image Analysis (Elsevier), IEEE Transactions in Medical Imaging, Pattern Recognition, and Computer Vision and Image Understanding.

9.1.5. Invited Talks

- **M. Lorenzi** was invited to give a lecture to: Nice Genomic Winter School, Dec 18th; Imaging-Genetics Winter School, University of Verona, Nov 25th-29th; SophIA Summit of Sophia Antipolis, Nov 19th; International Tau Workshop, Geneva University Hospital, Nov 11th; International Meeting "The future of Medicine Starts Now", Menarini Foundation, Genoa, Italy, Sep 27th; European Glaucoma Society Meeting, Bordeaux, Aug 30th; Big@UCA Summer School, Nice, Jun 26th; Lacassagne Hospital, Jun 20th; VUmc Hospital, Amsterdam, May 23rd; Collége de France, Paris, Apr 23rd; UCA Maison de la Simulation, Apr 18th; International Conference ISBI 2019, Venice, Apr 9th; UPF University, Barcelona, Feb 7th;

- **H. Delingette** was a keynote speaker at the University of Twente (NL) seminar on Nov 6th, at the regional Otology meeting "ORL PACA" on June 15th 2019, and at the Machine Learning Meets Medical Imaging workshop in Shenzhen, China, on Oct 13th.

- **X. Pennec** gave the following plenary invited talks:
    - IPAM program on Geometry and Learning from Data in 3D and Beyond (Los Angeles, USA, 02/04).
    - CARS 2019 conference in Rennes (19/06).
    - the Academie des Sciences en région in Nice and Sophia Antipolis (21/06).

    He also gave invited lectures and seminars at: Copenhagen University (DK 18/03); the Institut Mathematique de Toulouse (27/05); the ENUMATH 2019 conference held in Egmond aan Zee (NL, 04/10); LJK-Deterministic Models and Algorithms: EDP-AIRSEA-CVGI Seminar, Univ Grenoble (16/12).

- **M. Sermesant** was an invited speaker at the European Heart Rhythm Association conference (18/03), eHealth Monaco (27/03), Cardiac Electromechanics workshop (15/04), EuroCMR (03/05), CVPR Medical Imaging workshop (16/05), Innovation Alzheimer summer school (26/06), Académie de Médecine working group on AI & Healthcare (10/09), Inria/SIMULA workshop (26/09), SOPH.I.A Summit (20/11) and TRM Forum (10/12).
- **N. Ayache** gave the following plenary invited talks:
  – AI for Healthcare: Hope & Challenges. Global Forum on AI for Humanity, Paris, 2019.
  – AI for Medical Imaging & Digital Twins, Keynote Lecture, Shezhen University, China 2019.
  – AI for e-medecine, 5th International Symposium on Multi-disciplinary Computational Anatomy, Fukuoka, Japan 2019.
  – Le jumeau numérique: images, modèles et IA. Académie nationale de médecine, Paris, 2019.
  – Intelligence Artificielle et médecine. Académie des Sciences, Nice, 2019.
  – La Santé à l'ère numérique, Institut de l'ENS, 2019.
  – Imaging in Cancer - Multimodal Analysis, iBV, Nice, 2019

9.1.6. Leadership within the Scientific Community

- **H. Delingette** is a member of the MICCAI Society Board of Directors.
- **H. Delingette** is elected as MICCAI Society's Fellows.

9.1.7. Scientific Expertise

- **M. Lorenzi** was reviewer of the funding agency ANR (Agence Nationale de la Recherche, France). He is providing scientific consulting for the company MyDataModels and Flexper through an Inria Tech research contract.
- **X. Pennec** was a reviewer for the funding agency Israel Science Foundation (ISF).
- **M. Sermesant** was an evaluator for the Wellcome Trust (UK), the NSF (USA) and the Netherlands research council.
- **H. Delingette** is a member of the scientific committee of the institute 3IA Côte d'Azur and was reviewer of the funding agency ANR (Agence Nationale de la Recherche, France).
- **N. Ayache** is a member of the following scientific committes:
  – 2016 -: Scientific advisory committee for Région Ile de France (20 members),
  – 2015 - 2019: Research Committee of Fondation pour la Recherche Médicale (18 members),
  – 2010 -: Scientific Advisory Boards in London (ICL,KCL,UCL), Oxford & Notthingham,
  – 2009 - 2019: Advisory Committee, Japan Initiative in Computational Anatomy, MEXT.

9.1.8. Research Administration

- **N. Ayache** is the scientific director of the 3IA Côte d'Azur since its creation in April 2019.
- **Marco Lorenzi** is a member of the local steering committee of the technological platforms (Comités Scientifiques de Pilotage des Plateformes) in charge of Cluster, Grid, Cloud, and HPC technologies. He is also member of the Scientific Board of the UCA NeuroMod Institute.
- **Xavier Pennec** is co-director of the Ecole doctorale STIC of Université Côte d'Azur. He is a member of the committee of EDSTIC, of the Doctoral follow-up Committee (CSD) at Inria Sophia Antipolis, and participated to the PhD fellowship granting committees of EDSTIC, Cofund at UCA, CORDI at Inria. He is a member of the "Comité de la Recherche Biomédicale en Santé Publique (CRBSP)" of the Nice University Hospital (CHU). At University Côte d'Azur / IDEX-JEDI, he is a member of the executive committee of the Academy 4 (Living systems Complexity and diversity), of the Scientific committee of the Academy 2 (Complex Systems), and of the Advanced Research Program Committee. He was elected member of the Evaluation Committee of Inria (Sep. 2019 to Aug. 2023) and participated to the promotion commission for CRCN, DR1, DR0.

- **M. Sermesant** is an elected member of the Inria Sophia Antipolis research centre committee.
- **Hervé Delingette** is a member of the local committee in charge of the scientific selection of visiting scientists (Comité NICE) and the local committee on the immersive platform. He is the director of the Academy of excellence on "Networks, Information and Digital Society" at the Université Côte d'Azur. He is the deputy director of the "Ecole Universitaire de recherche" entitled *Digital Systems for Humans* at Université Côte d'Azur. He is a representive of Inria at the Federation Hospitalo-Universitaire Oncoage led by the CHU Nice.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: H. Delingette and X. Pennec, Introduction to Medical Image Analysis, 21h course (28.5 ETD), Master 2 MVA, ENS Saclay, France.

Master: H. Delingette and X. Pennec, Medical Image Processing, 30h course, M2 Data Science & AI, Univ. Côte d'Azur, France.

Master: H. Delingette, Data Visualization, 6h course, M1 Data Science & AI, Univ. Côte d'Azur, France.

Master: M. Lorenzi, Bayesian Learning, 30h course, Master Data Science, Univ. Côte d'Azur, France.

Master: M. Lorenzi, Model Selection and Resampling Methods, 30h course, Master Data Science, Univ. Côte d'Azur, France.

X. Pennec is a member of the pedagogical council of the Computational biology master QCSBD, Univ. Côte d'Azur, France.

9.2.2. Theses Defended

- Qiao Zheng, Deep learning for cardiac image analysis, Université Côte d'Azur. Started in January 2016. Co-directed by N. Ayache and H. Delingette. Defended on March the 27th, 2019.
- Pawel Mlynarski, Tumor segmentation based on Random Forests and Convolutional Neural Networks trained on partially annotaded data, Université Côte d'Azur. Started in December 2015. Co-directed by N. Ayache and H. Delingette. Defended on November the 15th, 2019.
- Raphaël Sivera, Analyse statistique de l'évolution de structures morphologiques partir de séquences temporelles d'IRM, Université Côte d'Azur. Started in October 2015. Co-directed by N. Ayache and H. Delingette and co-supervised by M. Lorenzi and X. Pennec. Defended on November the 29th, 2019.
- Shuman Jia, Population-based Model of Atrial Fibrillation: from Shape Statistics to Group-wise Physiology, Université Côte d'Azur. Started in 2016. Co-directed by M. Sermesant and X. Pennec. Defended on December the 18th 2019.

9.2.3. PhD in progress

- Clément Abi-Nader, Statistical Learning of Heterogeneous Data in Large-Scale Clinical Databases, Université Côte d'Azur. Started in 2017. Co-directed by P. Robert and N. Ayache and supervised by M. Lorenzi.
- Luigi Antelmi, Statistical learning on large databases of heterogeneous imaging, cognitive and behavioural data, Université Côte d'Azur. Started in 2017. Co-directed by P. Robert and N. Ayache and supervised by M. Lorenzi.
- Benoît Audelan, Joint biological and imaging markers for the diagnosis of severe lung diseases. Started in 2018. Co-directed by H. Delingette and N. Ayache.

- Tania-Marina Bacoyannis, Cardiac Imaging and Machine Learning for Electrostructural Tomography, Université Côte d'Azur. Started in 2017. Co-directed by M. Sermesant and H. Cochet.

- Jaume Banús Cobo, Heart & Brain: discovering the link between cardiovascular pathologies and neurodegeneration through biophysical and statistical models of cardiac and brain images, Université Côte d'Azur. Started in 2017. Directed by M. Sermesant and co-supervised by Marco Lorenzi.

- Nicolas Cedilnik, Personalised Modeling for Ventricular Tachycardia Ablation Planning, Université Côte d'Azur. Started in 2017. Co-directed by M. Sermesant and H Cochet.

- Florent Jousse, Analyse statistique de forme, de déformations et d'apparences de surfaces anatomiques pour l'aide à la dermatologie et à la chirurgie plastique. Started in 2019. Cifre fellowship with Quantificare. Co-directed by X. Pennec and H. Delingette.

- Buntheng Ly, Cardiac Image Analysis for Sudden Cardiac Death Prediction, Université Côte d'Azur. Started in 2019. Co-directed by M. Sermesant and H. Cochet.

- Nicolas Guigui, Statistical estimation on Riemannian and affine symmetric spaces with applications to the statistical survey of the brain anatomy, Université Côte d'Azur. Started in 2018. Directed by X. Pennec.

- Yann Thanwerdas, Statistical Dimension Reduction in Non-Linear Manifolds for Brain Shape Analysis, Connectomics & Brain-Computer Interfaces, Université Côte d'Azur. Started in 2019. Directed by X. Pennec.

- Wen Wei, Learning Brain Alterations in Multiple Sclerosis from Multimodal Neuroimaging Data, Université Côte d'Azur. Started in 2016. Co-directed by N.Ayache and O.Colliot.

- Julian Krebs, Robust image registration based on machine learning, Université Côte d'Azur. Started in 2016. Co-directed by H. Delingette and N. Ayache.

- Zihao WANG, Cochlear Implantation Modeling, Planning & Evaluation. Started in 2018. Directed by H. Delingette.

- Hind Dadoun, AI-Based Real Time Diagnosis of Abdominal Ultrasound, Université Côte d'Azur. Started in December 2019. Co-directed by N.Ayache and H.Delingette.

- Paul Tourniaire, AI-based selection of imaging and biological markers predictive of therapy response in lung cancer, Université Côte d'Azur. Started in 2019. Co-directed by N. Ayache and H. Delingette.

9.2.4. *Juries*

- Marco Lorenzi was invited jury member for the PhD defense of Remi Domingues (EURECOM, Sophia Antipolis).

- Xavier Pennec was reviewer and member of the jury for the PhDs of: Line Kuhnel, Univ. Copenhagen, DK, feb. 2019; Maxime Louis, UPMC, Sorbonne Universités, Paris, sep. 2019; Emilie Buessler, Univ. Grenoble-Alpes, Dec. 2019. He was President of the PhD jury of Emmanuelle Poulain, Univ Cote d'Azur, Oct. 2019, and President of the HDR jury of Olivier Commowick, Univ. Rennes, Jun. 2019.

- Maxime Sermesant was a reviewer for the PhD of Kenny Rumindo (Lyon).

- Hervé Delingette was a reviewer and member of the jury in the PhD thesis committee of H. Bertrand (ENST), defended on Jan. 8th 2019, of H. Oliveri (ENS LYon) defended on May 28th 2019.

9.3. Popularization

9.3.1. *Interventions*

- Maxime Sermesant did three 45 minutes interventions on Mathematics and Healthcare at the Jules Ferry High School in Cannes.

- Tania Bacoyannis and Nicolas Cedilnik presented AI for high school teachers and interacted with them on this topic during a day.

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ERABLE Project-Team

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9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Giuseppe Italiano is member of the Steering Committee of the *Workshop on Algorithm Engineering and Experimentation (ALENEX)*, of the International Colloquium on Automata, Languages and Programming (ICALP), and of the Workshop/Symposium on Experimental Algorithms (SEA).

- Alberto Marchetti-Spaccamela is a member of the Steering committee of *Workshop on Graph Theoretic Concepts in Computer Science (WG))*, and of *Workshop on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems (ATMOS)*.

- Arnaud Mary is member of the Steering Committee of *Workshop on Enumeration Problems and Applications (WEPA)*.

- Marie-France Sagot is member of the Steering Committee of *European Conference on Computational Biology (ECCB)*, *International Symposium on Bioinformatics Research and Applications (IS-BRA)*, and *Workshop on Enumeration Problems and Applications (WEPA)*.

- Alexander Schönhuth is member of the Steering committee of the *Research in Computational Molecular Biology, satellite conference on massively parallel sequencing (RECOMB-seq)*.

9.1.1.2. Member of the Organizing Committees

- Leen Stougie was co-organiser of MAPSP 2019, Jun 2019, Hotel Zeeuwse Stromen, Renesse; and of the Networks Workshop on Random graphs, counting and sampling, Sep 2019, CWI, Amsterdam.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

- Giuseppe Italiano was a member of the Program Committee of *APF*, *ATMOS*, and *CIAC*.

- Arnaud Mary was a member of the Program Committee of *MFCS*, and *WEPA*.

- Nadia Pisanti was a member of the Program Committee of *BIOINFORMATICS*, *CPM*, *ICCS*, *ISBRA*, *IWOCA*, and *WABI*.

- Marie-France Sagot was a member of the Program Committee of *BIBM*, *CIAC*, *CPM*, *PSC*, *RecombCG*, d an*WABI*.

9.1.2.2. Reviewer

Members of ERABLE have reviewed papers for a number of workshops and conferences including: *CPM*, *ISMB*, *RECOMB*, *WEPA*, *WABI*.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Roberto Grossi is member of the Editorial Board of *Theory of Computing Systems (TOCS)* and pf *RAIRO – Theoretical Informatics and Applications*.
- Giuseppe Italiano is member of the Editorial Board of *Algorithmica* and *Theoretical Computer Science*.
- Vincent Lacroix is recommender for *Peer Community in Genomics*, see https://genomics.peercommunityin.org/.
- Alberto Marchetti-Spaccamela is member of the Editorial Board of *Theoretical Computer Science*.
- Arnaud Mary is Editor-in-Chief of a special issue of *Discrete Applied Mathematics* dedicated to *WEPA* 2016.
- Nadia Pisanti is since 2012 member of Editorial Board of *International Journal of Computer Science and Application (IJCSA)* and since 2017 of *Network Modeling Analysis in Health Informatics and Bioinformatics*.
- Marie-France Sagot is member of the Editorial Board of *BMC Bioinformatics*, *Algorithms for Molecular Biology*, and *Lecture Notes in BioInformatics*.
- Leen Stougie is member of the Editorial Board of *AIMS Journal of Industrial and Management Optimization*.
- Cristina Vieira is Executive Editor of *Gene*, and since 2014 member of the Editorial Board of *Mobile DNA*.

9.1.3.2. Reviewer - Reviewing Activities

Members of ERABLE have reviewed papers for a number of journals including: *Theoretical Computer Science*, *Algorithmica*, *Algorithms for Molecular Biology*, *Bioinformatics*, *BMC Bioinformatics*, *Genome Biology*, *Genome Research*, *IEEE/ACM Transactions in Computational Biology and Bioinformatics (TCBB)*, *Molecular Biology and Evolution*, *Nucleic Acid Research*.

9.1.4. Invited Talks

- Giuseppe Italiano: invited talk on "2-Connectivity on Directed Graphs", 14th Computer Science Symposium in Russia (CSR 2019), Novosibirsk, Russia.
- Nadia Pisanti: Invited talk on "Mapping Reads on a Pan-Genome: Pattern Matching on Degenerate Texts", 1st Workshop on Computational Pan-Genomics, Bielefeld, Germany; Invited talk on "On-line (approximate) Pattern Matching on Degenerate Texts and Applications", 14th Workshop on Compression, Text and Algorithms (WCTA), Segovia, Spain.
- Solon Pissis: Invited talk on "Even Faster Elastic-Degenerate String Matching via Fast Matrix Multiplication", Algorithms Group Seminar Series, 24 Oct 2019, University of Warsaw, Warsaw, Poland; Invited talk on "When linear space is impractical: computing absent words in output-sensitive space", Bonsai Bioinformatics Seminar Series, 11 Jun 2019, Université de Lille, Lille, France; Invited talk on "Elastic-degenerate strings: a new representation for pattern matching in a collection of similar texts", Computer Science Seminar Series, Feb 12 2019, University of Pisa, Pisa, Italy.
- Leen Stougie: Invited talk on "Fixed-Order Scheduling on parallel machines", Workshop on Combinatorial Optimization, 26-27 September 2019, TU Berlin, Germany.
- Cristina Vieira: Invited talk on "Contribution of Transposable element to gene expression in Drosophila (and other)", XI Symposium of Ecology, Genetic and Drosophila Evolution, November 2019, Pelotas, Brazil.

9.1.5. Scientific Expertise

Giuseppe F. Italiano is member of the Council of the European Association for Theoretical Computer Science. Leen Stougie is member of the General Board of the Dutch Network on the Mathematics of Operations Research (Landelijk Netwerk Mathematische Besliskunde (LNMB)).

9.1.6. Research Administration

Hubert Charles is director of the Biosciences Department of the Insa-Lyon and co-director of studies of the "Bioinformatique et Modélisation (BIM)" track.

Giuseppe Italiano is member of the Advisory Board of MADALGO - Center for MAssive Data ALGOrithmics, Aarhus, Denmark.

Nadia Pisanti is since November 1st 2017 member of the Board of the PhD School in Data Science (University of Pisa jointly with Scuola Normale Superiore Pisa, Scuola S. Anna Pisa, IMT Lucca).

Marie-France Sagot is member of the Advisory Board of CWI, Amsterdam, the Netherlands, and chair of the CSS for MBIO at Inra.

Alexander Schönhuth is member of the Scientific Board of BioSB (the Dutch organisation for bioinformatics) since May 2017.

Leen Stougie is since April 2017 Leader of the Life Science Group at CWI. He is member of the General Board of the Dutch Network on the Mathematics of Operations Research (Landelijk Netwerk Mathematische Besliskunde (LNMB)), and member of the Management Team of the Gravity project Networks.

Alain Viari is member of a number of scientific advisory boards (IRT (Institut de Recherche Technologique) BioAster; Centre Léon Bérard). He also coordinates together with J.-F. Deleuze (CNRGH-Evry) the Research & Development part (CRefIX) of the "Plan France Médecine Génomique 2025".

Fabrice Vavre is President of the Section 29 of the CoNRS8.

Cristina Vieira is member of the "Conseil National des Universités" (CNU) 67 ("Biologie des Populations et Écologie"), and since 2017 member of the "Conseil de la Faculté des Sciences et Technologies (FST)" of the University Lyon 1.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

9.2.1.1. France

The members of ERABLE teach both at the Department of Biology of the University of Lyon (in particular within the BISM (BioInformatics, Statistics and Modelling) specialty, and at the department of Bioinformatics of the Insa (National Institute of Applied Sciences). Cristina Vieira is responsible for the Master Biodiversity, Ecology and Evolution (https://www.bee-lyon-univ.fr/). She teaches genetics 192 hours per year at the University and at the ENS-Lyon. Hubert Charles is responsible for the Master of Modelling and Bioinformatics (BIM) at the Insa of Lyon (http://biosciences.insa-lyon.fr/). He teaches 192 hours per year in statistics and biology. Vincent Lacroix is responsible for the M1 master in bioinformatics (https://www.bioinfo-lyon.fr/) and of the following courses (L3: Advanced Bioinformatics, M1: Methods for Data Analysis in Genomics, M1: Methods for Data Analysis in Transcriptomics, M1: Bioinformatics Project, M2: Ethics). He taught 96 hours in 2018-2019 and 192 hours in 2019-2020. Arnaud Mary is responsible for three courses of the Bioinformatics Curriculum at the University (L2: Introduction to Bioinformatics and Biostatistics, M1: Object Oriented Programming, M2: new course on Advanced Algorithms for Bioinformatics) and one at Insa (Discrete Mathematics). He taught 198 hours in 2019. Blerina Sinaimeri taught 36 hours in 2019 on graph algorithms for the M1 students of the Master in Bioinformatics, and on Discrete Mathematics at Insa. Fabrice Vavre taught 20h at the Master level.

The ERABLE team regularly welcomes M1 and M2 interns from the bioinformatics Master.

Vincent Lacroix and Audric Cologne were instructors in the NGS data analysis training for the CNRS Formation, a course coordinated by Annabelle Haudry, LBBE (https://cnrsformation.cnrs.fr/stage-19026-Bioinformatique-pour-le-traitement-de-donnees-de-sequencage-%28NGS%29—Lyon.html).

All French members of the ERABLE team are affiliated to the doctoral school E2M2 (Ecology-Evolution-Microbiology-Modelling, http://e2m2.universite-lyon.fr/).

9.2.1.2. Italy & The Netherlands

Italian researchers teach between 90 and 140 hours per year, at both the undergraduate and at the Master levels. The teaching involves pure computer science courses (such as Programming foundations, Programming in C or in Java, Computing Models, Distributed Algorithms) and computational biology (such as Algorithms for Bioinformatics).

Dutch researchers teach between 60 and 100 hours per year, again at the undergraduate and Master levels, in applied mathematics (*e.g.* Operational Research, Advanced Linear Programming), machine learning (Deep Learning) and computational biology (*e.g.* Biological Network Analysis, Algorithms for Genomics).

9.2.2. Supervision

The following PhDs were defended in ERABLE in 2019:

- Jasmijn Baaijens, CWI (supervisor: Alexander Schönhuth), Sep 2019
- Annelieke Baller, Vrije Universiteit Amsterdam (co-supervisor: Leen Stougie), Nov 2019
- Thomas Bosman, Vrije Universiteit Amsterdam (co-supervisor: Leen Stougie), Nov 2019
- Audric Cologne, University of Lyon 1 (funded by Inserm and Inria, co-supervisors: Patrick Edery – Federation of Health Research of Lyon-Est, Vincent Lacroix), Oct 2019
- Leandro Ishi Soares de Lima, University of Lyon 1 (funded by the Brazilian "Science without Borders" program, co-supervisors: Giuseppe Italiano, Vincent Lacroix, Marie-France Sagot), Apr 2019
- Nikos Parotsidis, University of Rome Tor Vergata, supervisor: Giuseppe Italiano, Mar 2019
- Henri Taneli Pusa, University of Lyon 1 (funded by H2020-MSCA-ETN-2014 project MicroWine, co-supervisors: Alberto Marchetti-Spaccamela, Arnaud Mary, Marie-France Sagot), Feb 2019

The following are the PhDs in progress:

- Marianne Borderes, University Lyon 1 (funded by ANR Technology Spock, co-supervisors: Susana Vinga – Instituto Superior Técnico at Lisbon; Marie-France Sagot)
- Nicolas Homberg, Inra, Inria & University of Lyon 1 (funded by Inra & Inria, co-supervisors: Christine Gaspin at Inra; Marie-France Sagot)
- Carol Moraga Quinteros, University of Lyon 1 (funded by Conicyt Chile, co-supervisors: Rodrigo Gutierrez – Catholic University of Chile, Marie-France Sagot)
- Camille Sessegolo, University of Lyon 1 (funded by ANR Aster; co-supervisors: Vincent Lacroix, Arnaud Mary)
- Michelle Sweering, CWI (co-supervisors: Solon Pissis and Leen Stougie)
- Yishu Wang, University Lyon 1 (funded by Ministère de l?Enseignement supérieur, de la Recherche et de l?Innovation, co-supervisors: Mário Figueiredo – Instituto Superior Técnico at Lisbon; Marie-France Sagot; Blerina Sinaimeri)
- Irene Ziska, University Lyon 1 (funded by Inria Cordi-S, co-supervisors: Susana Vinga – Instituto Superior Técnico at Lisbon; Marie-France Sagot)

9.2.3. Juries

The following are the PhD or HDR juries to which members of ERABLE participated in 2019.

- Vincent Lacroix: External reviewer of the PhD of Patricia Sieber, supervised by Stefan Schuster at Friedrich-Schiller University of Jena, Germany; external reviewer of the PhD of Luca Denti, supervised by Paola Bonizzoni at University Bicocca of Milano, Italy.
- Arnaud Mary: External reviewer of the PhD of Karima Ennaoui, supervised by Lhouari Nourine at University of Clermont-Ferrand, France.
- Marie-France Sagot: External Reviewer of the PhD of Pierre Marijon, University of Lille, France, Dec 2019.

- Leen Stougie: Reading Committee of the PhD of Teun Janssen, TU Delft, Mar 2019; Chair Reading Committee of the PhD of Pieter Kleer, Vrije Universiteit Amsterdam, Sep 2019; Reading Committee of the PhD of Peter van der Gulik, Univ. of Amsterdam, Sep 2019; Chair Reading Committee of the PhD of Maaike Hoogeboom, Vrije Universiteit Amsterdam, Dec 2019.

- Cristina Vieira: Member of the PhD Committee of Olivier Tabone, Faculté de Médecine Rockfeller, Jan 2019; Member of the PhD Committee of Sébastien Lemaire, ENS Lyon, Mar 2019; External Reviewer of the PhD of Natalia Martinez, Université Paris Sud, Oct 2019.

9.3. Popularization

9.3.1. Interventions

Carol Moraga Quinteros participated in the contest "DESCRYPThèse" of the doctoral school E2M2 of the University of Lyon 1, winning a prize for one of the best presentations in April 2019. The title of the talk was "BrumiR: un algorithme *de novo* pour prédire les petits ARNs sans génome de référence".

<h1 style="text-align: center; color: red;">FLUMINANCE Project-Team</h1>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

Jocelyne Erhel is member of

- the international advisory committee of the parallel CFD conferences (Antalya, May 2019).
- the program committee of the workshop Visualization in Environmental Sciences 2019 (co-event of EuroVis).
- the scientific Committee of the workshop "Parallel solution methods for systems arising from PDEs" (Marseille, September 2019).
- the scientific Committee of the conference SimRace (IFPEN, Rueil-Malmaison, scheduled in December 2019 and postponed in 2020).

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

Jocelyne Erhel

- member of the editorial board of ETNA.
- member of the editorial board of ESAIM:Proceedings and Surveys.

Etienne Mémin

- Associate editor for the Int. Journal of Computer Vision (IJCV)
- Associate editor for the Image and Vision Computing Journal (IVC)

9.1.2.2. Reviewer - Reviewing Activities

Jocelyne Erhel: Reviewer for the journals Computational Geosciences, SISC, M2AN, JCAM, PARCO
Dominique Heitz: Reviewer for Exp. in Fluids, AMI Région Auvergne Rhone Alpes
Etienne Mémin: Reviewer for Tellus-A, Quat. J. of the Roy. Met. Soc., Journ. of Fluid Mech., Im. Vis. Comp., Exp. in Fluids, Journ. of Comp. Phys.
Gilles Tissot: Reviewer for Journal of Sound and Vibration, Fluid Dynamics Research.

9.1.3. Invited Talks

Werner Bauer

- European Numerical Mathematics and Advanced Applications Conference 2019, Egmond aan Zee, The Netherlands.
- Seminar talk at IRMAR, University of Rennes, France.
- Seminar talk at the Journée Rennes-Nantes d'Analyse 2019, University of Nantes, France.

Jocelyne Erhel

- Workshop on "Reactive transport modeling", IPGP, Paris, June 2019.
- Workshop on "Parallel Solution Methods for Systems Arising from PDEs", Marseille, France, September 2019.
- Workshop on "Advances in the SImulation of reactive flow and TRAnsport in porous Media (SITRAM)",

Etienne Mémin

- Workshop Big data, data assimilation, and uncertainty quantification, IHP, Paris (France), 12-15 November 2019
- Workshop on stochastic parameterizations and their use in data assimilation 1-5 July 2019 Imperial College London
- Equadif 2019, Leiden The Netherland, July 2019
- EGU, Vienna, Austria, April 2019
- Workshop on Conservation Principles, Data & Uncertainty in Atmosphere-Ocean Modelling", Potsdam, Germany April 2019

9.1.4. Leadership within the Scientific Community

- J. Erhel is scientific coordinator of the website Interstices (since June 2012). https://interstices.info.

9.1.5. Scientific Expertise

- J. Erhel is a member of the scientific council of IFPEN, since April 2016.

9.1.6. Research Administration

Jocelyne Erhel

- the Inria administrative commission (CAP) for researchers, 2016-2019.
- the maths thesis committee of IRMAR, 2017-2019.
- the selection committee for PhD grants of OSUR, 2019.

Dominique Heitz

- Responsible of the Irstea ACTA Team
- Member of Irstea OPAALE research unit Executive Committee
- Member of Pôle Cristal scientific council
- D. Heitz is a member of scientific council of CSTB's Jules Verne Wind Tunnel

Roger Lewandowski

- President du Comité de liaison du groupe GAMNI-SMAI
- President of the Blaise Pascal award jury
- President of GAMNI-SMAI PhD thesis award
- Corresponding person of the SMAI in Rennes
- Responsible of the group "Mathematical modeling" of IRMAR
- Member of the scientific council of IRMAR,
- Member of Mathematical teaching council of U. Rennes I
- Member of the scientific council of the Henri Lebesgue Centre

Etienne Mémin

- Member of the scientific council of LEFE-MANU action of CNRS INSU
- Member of the comity GAMNI-SMAI

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: Jocelyne Erhel, Optimisation, 12h, niveau L3, ENSAI Rennes

Licence : Dominique Heitz, Mécanique des fluides, 30h, niveau L2 INSA Rennes

Master: Jocelyne Erhel, arithmétique flottante, 4h, niveau M1, INSA Rennes

Master : Dominique Heitz, Mécanique des fluides, 25h, niveau M1, Dep GMA INSA Rennes

Master: Roger Lewandowski, Euler and the Navier-Stokes equations, M2, master « fondamental mathematics ».

Master : Etienne Mémin, Analyse du mouvement, Master Informatique, 15h, niveau M2, Université de Rennes 1.

Master : Etienne Mémin, Vision par ordinateur , 15h, niveau M2, ESIR Université de Rennes 1.

Master : Etienne Mémin, Motion analysis , 9h, Master 2 SISEA Université de Rennes 1.

Master : Gilles Tissot, mathematics for acoustics, 20h, niveau M1, Université du Mans.

9.2.2. Supervision

PhD in progress: Bastien Hamlat, University of Rennes 1, October 2016, co-advisors Jocelyne Erhel and A. Michel.

PhD in progress : Long Li, Data assimilation and stochastic transport for the upper ocean dynamics, started November 2017, Etienne Mémin.

PhD in progress : Yacine Ben Ali, Variational assimilation of RANS models for wind engineering, started November 2017, Dominique Heitz, Etienne Mémin, Gilles Tissot.

PhD in progress : Dinh Duong Nguyen, Regular and singular solutions of Navier-Stokes equations with eddy viscosity, started September 2017 , Roger Lewandowski.

PhD in progress : Robin Billard, Modelling of non-conventional perforated acoustic liners, Université du Mans, started December 2017, Gilles Tissot.

9.2.3. Juries

Jocelyne Erhel

- Etienne Ahusborde, HdR, Univ. Strasbourg (rapporteur)
- Benoit Pinier, PhD, Univ. Rennes (examinatrice)
- Quentin Tournois, PhD, Univ. Rennes (examinatrice)

Etienne Mémin

- Anthony Fillion, Ecoles des Ponts, U. Paris-Est (Rapporteur)
- Alban Farchi, Ecoles des Ponts, U. Paris-Est (Examinateur)
- Arthur Pajot, Sorbonne Université, (Rapporteur)

9.3. Popularization

9.3.1. Education

Jocelyne Erhel

- présidente du jury du rallye de mathématiques du CNED, since 2017.

9.3.2. Interventions

Jocelyne Erhel

- conference about spreading epidemics, "les amphis lycéens 2018-2019", March 2019.
- conference about spreading epidemics, "les amphis lycéens 2019-2020", December 2019. [46].

9.3.3. Creation of media or tools for science outreach

Jocelyne Erhel

- was scientific coordinator of the website Interstices (June 2012 - September 2019). She is now member of the editorial board, from October 2019.

GENSCALE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Chair of Conference Program Committees

- seqBIM 20019 : national meeting of the sequence algorithms GT seqBIM [C. Lemaitre]

10.1.1.2. Member of the Conference Program Committees

- JOBIM 2019: French symposium of Bioinformatics [C. Lemaitre]
- seqBIM 2019 : national meeting of the sequence algorithms GT seqBIM [C. Lemaitre, P. Peterlongo]
- BIBM 2019, IEEE International Conference on Bioinformatics and Biomedicine [D. Lavenier]
- BIOKDD 2019, 10th International Workshop on Biological Knowledge Discovery from Big Data [D. Lavenier]
- IPDPS 2019, 33rd IEEE International Parallel and Distributed Processing Symposium [D. Lavenier]
- 11th International Conference on Bioinformatics and Computational Biology (BICOB-2019) [R. Andonov]
- RCAM 2019 (Recent Computational Advances in Metagenomics) [P. Peterlongo]

10.1.1.3. Reviewer

- ISMB 2019 (Intelligent Systems for Molecular Biology) [W. Delage, C. Lemaitre]

10.1.2. Journal

10.1.2.1. Reviewer - Reviewing Activities

- Bioinformatics [P. Peterlongo, D. Lavenier]
- BMC Bioinformatics [D. Lavenier]
- BMC Genomics [D. Lavenier, F. Legeai]
- Briefing in Bioinformatics [D. Lavenier]
- Nature Scientific Reports [F. Legeai]
- Genome Biology [D. Lavenier]
- Genomics [D. Lavenier]
- Machine Learning [J. Nicolas]

10.1.3. Invited Talks

- (IB)2 Research Day - Bruxelles - Oct 2019- "Metagenomics-Comparisons and variants" [P. Peterlongo]

10.1.4. Leadership within the Scientific Community

- Members of the Scientific Advisory Board of the GDR BIM (National Research Group in Molecular Bioinformatics) [P. Peterlongo, C. Lemaitre]
- Animator of the Sequence Algorithms axis (seqBIM GT) of the BIM and IM GDRs (National Research Groups in Molecular Bioinformatics and Informatics and Mathematics respectively) [C. Lemaitre]
- Animator of the INRA Center for Computerized Information Treatment "BBRIC" [F. Legeai]

10.1.5. Scientific Expertise

- Expert for the MEI (International Expertise Mission), French Research Ministry [D. Lavenier]
- Member of the Scientific Council of BioGenOuest [D. Lavenier]
- Member of the Scientific Council of the Computational Biology Institute of Montpellier [D. Lavenier]
- Member of the Scientific Council of Agrocampus Ouest (Institute for life, food and horticultural sciences and landscaping) [J. Nicolas]
- Expert for the Elixir French Service Delivery Plan [P. Peterlongo]

10.1.6. Research Administration

- Member of the CoNRS, section 06, [D. Lavenier]
- Member of the CoNRS, section 51, [D. Lavenier]
- Corresponding member of COERLE (Inria Operational Committee for the assesment of Legal and Ethical risks). Participation to the ethical group of IFB (French Elixir node, Institut Français de Bioinformatique) [J. Nicolas]
- Member of the steering committee of the INRA BIPAA Platform (BioInformatics Platform for Agro-ecosystems Arthropods) [D. Lavenier]
- Member of the steering committee of The GenOuest Platform (Bioinformatics Resource Center BioGenOuest) [D. Lavenier]
- Scientific Advisor of The GenOuest Platform (Bioinformatics Resource Center BioGenOuest) [J. Nicolas]
- Representative of the environnemental axis of the IRISA UMR [C. Lemaitre]
- In charge of the bachelor's degree in the computer science department of University of Rennes 1 (90 students) [R. Andonov]
- Member of the Council of Administration of ISTIC [R. Andonov]

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : C. Delahaye, G. Siekaniec, Python, 48 h, L1, Univ. Rennes 1, France.

Licence : R. Andonov, Graph Algorithms, 60h, L3, Univ. Rennes 1, France.

Licence : K. Da Silva, Algorithms and Complexity, 36 h, L3, ENSAI, Rennes, France.

Licence : W. Delage, Introduction to Biostatistics, 36 h, L2, Univ. Rennes 1, France.

Master : R. Andonov, S. Francois, Operational research, 82h, M1 Miage, Univ. Rennes 1, France.

Master : G. Siekaniec, Python, 21 h, M1, Univ. Rennes 1, France.

Master : K. Da Silva, Statistical learning, 22h, M1, Univ. Rennes 1, France.

Master : C. Lemaitre, P. Peterlongo, Algorithms on Sequences, 52h, M2, Univ. Rennes 1, France.

Master : C. Lemaitre, T. Lemane, Bioinformatics of Sequences, 40h, M1, Univ. Rennes 1, France.

Master : P. Peterlongo, Experimental Bioinformactics, 24h, M1, ENS Rennes, France.

Master : F. Legeai, RNA-Seq, Metagenomics and Variant discovery, 12h, M2, National Superior School Of Agronomy, Rennes, France.

Master : R. Andonov, Advanced Algorithmics, 25h, Univ. Rennes 1, France.

Master : D. Lavenier, Memory Efficient Algorithms for Big Data, Engineering School, ESIR, Rennes.

Master : W. Delage, Internship jury, 6 h, M1, Univ. Rennes 1, France

10.2.2. Supervision

PhD in progress : S. François, Combinatorial Optimization Approaches for Bioinformatics, 01/10/2016-30/09/2019, R. Andonov.

PhD in progress : L. Lecompte, Structural Variant detection in long-read sequencing data, 01/09/2017, D. Lavenier and C. Lemaitre.

PhD in progress : W. Delage, De novo local assembly approaches for the detection of complex genomic variations in rare diseases, 01/10/2017, J. Thévenon and C. Lemaitre.

PhD in progress: K. da Silva, Metacatalogue : a new framework for intestinal microbiota sequencing data mining, 01/10/2018, M. Berland, N. Pons and P. Peterlongo.

PhD in progress: G. Siekaniec, Differential characterization of strains of bacterial species, 01/10/2018, E. Guédon, E. Roux and J. Nicolas.

PhD in progress: C. Delahaye, Robust interactive reconstruction of polyploid haplotypes, 01/10/2019, J. Nicolas

PhD in progress: T. Lemane, unbiased detection of neurodegenerative structural variants using k-mer matrices, 01/10/2019, P. Peterlongo

10.2.3. Juries

- *Member of Habilitation thesis jury*. S. Caboche, Univ. Lille [P. Peterlongo] R. Eyraud, Univ. Marseille [J. Nicolas, referee]
- *President of PhD thesis jury*. J. Wanza, University of Nice Sophia Antipolis [D. Lavenier], M. Guillemé, Univ. Rennes [J. Nicolas]
- *Referee of Ph-D thesis jury*. Kevin Gravouil, Univ Clermont Auvergne [P. Peterlongo]
- *Member of PhD thesis juries*. Lyam Baudry, University Paris-Sorbonne [C. Lemaitre], Pierre Morisse, Univ. Rouen [P. Peterlongo], Pierre Marijon, Univ Lille [P. Peterlongo], Franklin Delehelle, University of Toulouse [D. Lavenier], Lucas Bourneuf, Univ. Rennes [J. Nicolas].
- *Member of PhD thesis committee*. Chi Nguyen Lam, Univ. Brest [D. Lavenier], Benjamin Churcheward, Univ. Nantes [D. Lavenier], Victor Gaborit, Inserm Nantes [P. Peterlongo], Guillaume Gautreau CEA [P. Peterlongo], Sébastien François, Univ. Rennes [J. Nicolas], Mikaïl Demirdelen, Univ. Rennes [J. Nicolas], Hugo Talibart, Univ. Rennes [J. Nicolas].

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Member of the Interstice editorial board [P. Peterlongo]

10.3.2. Interventions

- In educational institutions : Participation to operation "A la découverte de la recherche" in high schools [P. Peterlongo]
- Short Movie "Moi, mon chien et les autres: à la recherche des transcrits perdus", presented at Sciences en Courts, a local contest of popularization short movies made by PhD students (http://sciences-en-courts.fr/) [G. Siekaniec].

10.3.3. Internal action

- co-organizer of Sciences en cour[t]s event, Nicomaque association (http://sciences-en-courts.fr/) [W. Delage]

10.3.4. Creation of media or tools for science outreach

- Popularization article in Interstices. "Analyser le génome des océans" https://interstices.info/analyser-les-genomes-des-oceans/ [P. Peterlongo]

<h1 style="text-align:center; color:red;">IBIS Project-Team</h1>

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. Member of organizing committees

IBIS members	Conference, workshop, school	Date
Hidde de Jong	CompSysBio: Advanced Lecture Course on Computational Systems Biology, Aussois	Apr 2019
Aline Marguet	Biohasard: Stochastic models for biology, Grenoble	Jun 2020
Delphine Ropers	Séminaire de Modélisation du Vivant (SeMoVi), Lyon and Grenoble	2019

8.1.2. Scientific events selection

8.1.2.1. Chair of conference program committees

IBIS member	Conference, workshop, school	Role
Eugenio Cinquemani	European Control Conference (ECC 2019 and 2020)	Associate editor

8.1.2.2. Member of conference program committees

IBIS member	Conference, workshop, program
Eugenio Cinquemani	ECC 2019 and 2020, CMSB 2018 and 2019, HSB 2019 and 2020, SASB 2019, IEEE CIBCB 2019
Hidde de Jong	CMSB 2019, FOSBE 2019, HSB 2019 and 2020
Delphine Ropers	CSBio 2019

8.1.3. Journal

8.1.3.1. Member of editorial boards

IBIS member	Journal
Johannes Geiselmann	Frontiers in Microbiology (review editor)
Hidde de Jong	Journal of Mathematical Biology
Hidde de Jong	Biosystems (reviews editor)
Hidde de Jong	ACM/IEEE Transactions on Computational Biology and Bioinformatics

8.1.4. Scientific evaluation and expertise

IBIS member	Organism	Role
Johannes Geiselmann	INRA	Member scientific advisory committee Microbiologie, Adaptation, Pathogénie
Johannes Geiselmann	UMR5240 CNRS-UCBL-INSA-BayerCropScience	Member scientific council
Hidde de Jong	Microbiology and Food Chain Department, Inra	Member scientific council
Hidde de Jong	Univ Grenoble Alpes	Member scientific council of Pôle MSTIC
Hidde de Jong	International Human Frontier Science Program (HFSP)	Member grant selection committee
Delphine Ropers	INRA-Inria	Member selection committee PhD grants
Delphine Ropers	Elixir	Member of Microbial Biotechnology Community

8.1.5. Invited talks and other presentations

Eugenio Cinquemani

Title	Event and location	Date
Estimation and control of microbial dynamics: From single-cell to microbial communities	Presentation at Inria-KAIST workshop on Applied mathematics, Paris	Mar 2019
Optimal control of bacterial growth for metabolite production: The role of timing and costs of control	Presentation at ECC 2019, Naples (Italy)	Jun 2019
Enhanced production of heterologous proteins by a synthetic microbial consortium: Conditions and tradeoffs	Invited talk at Workshop Advanced Physics for Medicine, CNR, Rome (Italy)	Sep 2019

Hidde de Jong

Title	Event and location	Date
Integrated models of the cell: metabolism, gene expression, signalling	Tutorial at CompSysBio: Advanced Lecture Course on Computational Systems Biology, Aussois	Apr 2019
Optimal control of bacterial growth: biotechnological applications	Invited talk at Workshop New Vistas in Computational Systems and Synthetic Biology, Vigo (Spain)	May 2019
Optimal control of microbial growth and bioproduction	Invited talk at SYMER workshop, Global Challenge Week, Univ Grenoble Alpes, Grenoble	Jun 2019
Reengineering bacterial metabolism using synthetic biology and optimal control theory	Invited talk in special session on Predictive approaches for biological systems engineering, JOBIM 2019, Nantes	Jul 2019
Production of heterologous proteins by a synthetic microbial consortium: conditions and tradeoffs	Invited talk at Biocore seminar, Peyresq	Sep 2019

Stéphan Lacour

Title	Event and location	Date
New insights into the regulation of curli production by E. coli	BactoGre workshop, Grenoble	Avr 2019

Aline Marguet

Title	Event and location	Date
Inheritance and variability of kinetic gene expression parameters in microbial cells: Modelling and inference from lineage tree data	Invited talk at École de printemps de la chaire MMB, Aussois	May 2019
Inheritance and variability of kinetic gene expression parameters in microbial cells: Modelling and inference from lineage tree data	Presentation at ISMB/ECCB conference, Basel (Switzerland)	Jul 2019
Inheritance and variability of kinetic gene expression parameters in microbial cells: Modelling and inference from lineage tree data	Invited talk at Biohasard 2019 workshop, Rennes	Aug 2019
Inheritance and variability of kinetic gene expression parameters in microbial cells: Modelling and inference from lineage tree data	Presentation at Journée Inria-Bio, Lyon	Oct 2019
Inheritance and variability of kinetic gene expression parameters in microbial cells: Modelling and inference from lineage tree data	Seminar Master Mathématiques pour les Sciences du Vivant, Ecole Polytechnique, Palaiseau	Oct 2019
Modelling and statistics of branching processes	Workshop on Growth and division in mathematics and medicine, London (UK)	Nov 2019
Inheritance and variability of kinetic gene expression parameters in microbial cells: Modelling and inference from lineage tree data	Seminar équipe-projet DRACULA, Lyon	Nov 2019
Inheritance and variability of kinetic gene expression parameters in microbial cells: Modelling and inference from lineage tree data	Seminar unité MaIage, Jouy-en-Josas	Dec 2019
Long time behavior of a general class of branching Markov processes	Seminar Institut Fourier, Grenoble	Dec 2019

Marco Mauri

Title	Event and location	Date

Thibault Etienne

Title	Event and location	Date
Regulatory mechanisms underlying coordination of mRNA degradation and cell physiology in Escherichia coli	Seminar during Journée annuelle du LIPhy, Grenoble	Jun 2019
Large scale modelling of mRNA decay in Escherichia coli	Seminar during Journée InriaBio, ENS de Lyon	Oct 2019

Antrea Pavlou

Title	Event and location	Date
Experimental and computational analysis of bacterial self-replicators	Poster at CompSysBio: Advanced Lecture Course on Computational Systems Biology, Aussois	Apr 2019
Experimental and computational analysis of bacterial self-replicators	Seminar for GdT MathBio, Grenoble	Nov 2019

8.1.6. Research administration

IBIS member	Committee	Role
Eugenio Cinquemani	Inria Grenoble - Rhône-Alpes	Member Comité des Emplois Scientifiques (CES)
Eugenio Cinquemani	Inria Grenoble - Rhône-Alpes	Member Comité des Utilisateurs des Moyens Informatiques (CUMI)
Eugenio Cinquemani	Inria	Member Comité Administrative Paritaire (CAP)
Eugenio Cinquemani	Inria Grenoble - Rhône-Alpes	Member Comité Développement Technologique (CDT)
Hidde de Jong	Inria Grenoble - Rhône-Alpes	Member scientific council (COS)
Hidde de Jong	Inria	Member working group on International Relations of Conseil d'Orientation Scientifique et Technique (COST)
Delphine Ropers	Inria	Member of Commission d'évaluation d'Inria
Delphine Ropers	Inria Grenoble - Rhône-Alpes	Référente chercheurs
Delphine Ropers	Inria Grenoble - Rhône-Alpes	Co-coordinator of mentoring program

8.1.7. Recruitment committees

IBIS member	Organism	Recruitment
Johannes Geiselmann	University of Barcelona	Assistant professor
Delphine Ropers	Inria Bordeaux Sud-Ouest	Chargés de recherche (jury d'admissibilité)
Delphine Ropers	Inria national	Chargés de recherche (jury d'admissibilité)
Delphine Ropers	Univ de Rennes	Assistant professor

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Four members of the IBIS team are either full professor or associate professor at Univ Grenoble Alpes. They therefore have a full teaching service (at least 192 hours per year) and administrative duties related to the organization and evaluation of the university course programs on all levels (from BSc to PhD). Besides the full-time academic staff in IBIS, the following people have contributed to courses last year.

Eugenio Cinquemani

Course: Stochastic modelling of gene regulatory networks, M2, BIM, INSA de Lyon (4 h)

Course: Statistics for systems biology, M1, Master Approches Interdisciplinaires du Vivant, CRI/Univ Paris Descartes (20 h, also in charge of 20 h of practicals)

Course: Modelling and identification of metabolic networks, M1, Phelma, INP Grenoble (4 h)

Hidde de Jong

Course and practicals: Modeling and simulation of gene regulatory networks, M2, BIM, INSA de Lyon (20 h)

Aline Marguet

Practicals: Biostatistics, M2, Univ Grenoble Alpes (24 h)

Delphine Ropers

Course and practicals: Modelling in systems biology, M1, Phelma, INP Grenoble (16 h)

Course and practicals: Cell systems biology and modelling cell functions, M1, Master ingéniérie de la santé, Univ Grenoble Alpes (14 h)

Thibault Etienne

Course: Construction et analyse de plasmides in silico, M1, Master ingéniérie de la santé, Univ Grenoble Alpes (4 h)

Antrea Pavlou

Practicals: Cellular biology, L1, Chemistry and biochemistry, Univ Grenoble Alpes (28 h)

8.2.2. Supervision

HdR: **Eugenio Cinquemani**, Identification, estimation and control of gene expression and metabolic network dynamics [14], Univ Grenoble Alpes, Nov 2019

PhD in progress: **Thibault Etienne**, Analyse intégrative de la coordination entre stabilité des ARNm et physiologie cellulaire chez *Escherichia coli*. Supervisors: Delphine Ropers and Muriel Cocaign-Bousquet (INRA Toulouse)

PhD in progress: **Joël Espel**, RNA engineering: Design of the dynamical folding of RNA and of RNA switches. Supervisors: Alexandre Dawid (Univ Grenoble Alpes) and Johannes Geiselmann

PhD in progress: **Antrea Pavlou**, Experimental and computational analysis of bacterial self-replicators. Supervisors: Hidde de Jong and Johannes Geiselmann

PhD in progress: **Maaike Sangster**, Development, characterization and control of E. coli communities on an automated experimental platform. Supervisors: Eugenio Cinquemani and Johannes Geiselmann

8.2.3. Juries

PhD thesis committees

IBIS member	Role	PhD student	University	Date
Johannes Geiselmann	Président	Vanni Petrolli	Univ Grenoble Alpes	Nov 2019
Hidde de Jong	Rapporteur	Pauline Trébulle	AgroParisTech	Oct 2019
Hidde de Jong	Rapporteur	Firas Hammami	Univ d'Aix-Marseille	Dec 2019
Delphine Ropers	Examinateur	Marianyela Petrizzelli	Univ Paris Sud	Jul 2019
Delphine Ropers	Examinateur	Ronan Duchesne	Univ de Lyon	Dec 2019

Habilitation (HDR) committees

IBIS member	Role	HDR candidate	University	Date
Johannes Geiselmann	Président	Marianne Weidenhaupt	Univ Grenoble Alpes	Jan 2019
Hidde de Jong	Président	Arnaud Tonnelier	Univ Grenoble Alpes	Jun 2019
Hidde de Jong	Rapporteur	Stefan Müller	University of Vienna	Sep 2019
Hidde de Jong	Examinateur	Eugenio Cinquemani	Univ Grenoble Alpes	Nov 2019

PhD advisory committees

IBIS member	PhD student	University
Eugenio Cinquemani	Arthur Carcano	Institut Pasteur/Inria
Eugenio Cinquemani	Alexey Koshkin	ENS de Lyon
Johannes Geiselmann	Alain Lombard	Univ Grenoble Alpes
Johannes Geiselmann	Shiny Martis	INSA de Lyon
Hidde de Jong	Charlotte Coton	INRA Moulon
Hidde de Jong	Kapil Newar	Univ Grenoble Alpes
Hidde de Jong	Agustín Yabo	Univ Nice–Sophia-Antipolis
Stéphan Lacour	Julien Trouillon	CEA Grenoble
Stéphan Lacour	Camille Brunet	CHU Grenoble
Stéphan Lacour	Raphael Fourquet	INSA de Lyon/Univ de Lyon
Stéphan Lacour	Kevin Pick	Univ de Lyon
Delphine Ropers	Manon Barthe	Univ Paul Sabatier, Toulouse
Delphine Ropers	Charlotte Roux	Univ Paul Sabatier, Toulouse
Delphine Ropers	Irene Ziska	Univ de Lyon

8.2.4. Teaching administration

Yves Markowicz is director of the BSc department at Univ Grenoble Alpes.

Michel Page is coordinator of the master Systèmes d'information et d'organisation at the Institut d'Adminstration des Entreprises (IAE), Univ Grenoble Alpes.

Eugenio Cinquemani organizes a module on statistics in systems biology at CRI/Univ Paris Descartes.

Delphine Ropers organizes a module on the mathematical modeling of biological systems at PHELMA, INP Grenoble.

Hidde de Jong organizes with Daniel Kahn a module on the modeling of genetic and metabolic networks at INSA de Lyon.

8.3. Popularization

8.3.1. Interventions

Delphine Ropers participated in the colloquium FIGAS 2019 - Un rêve pour les filles et les garçons : la Science (Nov 2019). She was moderator of the session "Stéréotypes dans le numérique", and co-presented with Thierry Vieville "Mais comment éduquer les garçons à l'équité des genres au niveau informatique et numérique ?".

LEMON Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Member of the Conference Program Committees

Gwladys Toulemonde is member of the scientific committee of Spatial Statistics 2019 (Sitges, Spain)

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

Gwladys Toulemonde is guest editor of a special issue of the Journal Spatial Statistics entitled Space-time modeling of rare events and environmental risks. This special issue is related to the conference METMA 9 organized in 2018 in Montpellier by Gwladys Toulemonde and Liliane Bel.

Antoine Rousseau is associate editor of Discrete and Continuous Dynamical Systems series S DCDS-S.

9.1.2.2. Reviewer - Reviewing Activities

Carole Delenne is a reviewer for Journal of Hydraulic Research, Water, Computers Environment and Urban Systems (1 to 3 manuscripts/year)

Vincent Guinot is a reviewer for Journal of Hydrology, Advances in Water Resources, Mathematical Problems in Engineering (3 manuscripts/year)

Antoine Rousseau is a reviewer for Journal of Hydrology and Environmental Modeling & Assessment (3 manuscripts/year)

Pascal Finaud-Guyot is a reviewer for Journal of Hydroinformatics, Advances in Water Resources, Environmental Modelling and Software, Journal of Hydrology (2 manuscripts/year)

Gwladys Toulemonde is a reviewer for computational statistics and data analysis, Dependence modeling, Extremes, Journal of applied Statistics, Journal of Statistical Theory and Practice, Statistics and Computing, Water Ressources research (1 to 3 manuscripts/year)

9.1.3. Invited Talks

Gwladys Toulemonde was invited in a session of the Extreme Value Analysis (EVA) conference in July, 2019 (Zagreb, Croatia).

Gwladys Toulemonde was invited in a session of the ERCIM-CMStatistics conference in December, 2019 (London, UK).

Antoine Rousseau was invited at side event on AI and numerical modelling at COP25 (Madrid, Spain) in December 2019.

9.1.4. Leadership within the Scientific Community

Antoine Rousseau is the scientific coordinator of the the research line *advanced modeling for marine energy* at MERIC (Santiago, Chile).

9.1.5. Scientific Expertise

Gwladys Toulemonde is appointed by the Occitanie region to the scientific board in charge of innovation projects in the field of intelligent systems and digital data chain

Antoine Rousseau is member of the international scientific board of the Climat-AmSud program

9.1.6. Research Administration

Vincent Guinot is head of the ETH team at HSM (10 staff members),

Vincent Guinot is a member of the HSM steering board,

Carole Delenne is elected member of the HSM board (UMR 5569),

Antoine Rousseau is head of the LEMON team at Inria CRI-SAM (5 staff members),

Antoine Rousseau is a member of the Inria CRI-SAM steering board (*Comité des Projets*)

Antoine Rousseau is a member of the Inria CRI-SAM scientific board (*Bureau du Comité des Projets*)

Gwladys Toulemonde is elected member of the IMAG board (UMR 5149)

Gwladys Toulemonde is elected member of the MIPS Scientific Department (Mathematics, Computer Science, Physics and Systems), a component of the University of Montpellier

Gwladys Toulemonde is elected member of the French Statistical Society board (*Société Française de Statistique, SFdS*) and vice-president since july 2019

Gwladys Toulemonde is elected member of Environment group of the French Statistical Society board (*Société Française de Statistique, SFdS*)

Gwladys Toulemonde is elected member of the liaison commitee of the MAS Group (*Modélisation Aléatoire et Statistique*), SMAI (*Société de Mathématiques Appliquées et Industrielles*)

Gwladys Toulemonde was appointed in 2019 external member of a MCF recruitment at the university of Compiègne (MCF 4121, section CNU 26).

Gwladys Toulemonde was appointed in 2019 external member of a MCF recruitment at the university of Nice (MCF 4576, section CNU 26).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Four LEMON permanent members (out of five) are university staff and have teaching duties. Most of their lectures are given at master level at Polytech Montpellier in the departments Informatics and Management (IG), Water Sciences and Technologies (STE) and Water and Civil Engineering (EGC) as well in other courses of University of Montpellier. The teaching load is summarized in Table 1 .

Gwladys Toulemonde is responsible for student recruitment at the IG department (Polytech Montpellier).

Table 1. Teaching

Antoine Rousseau	Teaching M1 level: 0 to 30 hrs/year
	Student supervision: 50 hrs/year
Carole Delenne	Teaching L1-M2 level: 200-250 hrs/year
	hydraulics, applied mathematics, informatics
	Student tutorship and supervision: 50-100 hrs/year
Gwladys Toulemonde	50% CNRS delegation in 2019
	Teaching L3/M1/M2 level: 128 hrs in 2019
	mathematics, probability, statistics, data mining
Pascal Finaud-Guyot	Teaching L3/M1/M2 level: 200-250 hrs/year
	hydraulics, applied mathematics, informatics
	Student tutorship and supervision: 50-100 hrs/year
Vincent Guinot	Teaching L3/M1/M2 level: 290 hrs/year
	Student tutorship and supervision: 50-100 hrs/year

9.2.2. Supervision

PostDoc: Gwladys Toulemonde advises a post-doctoral fellow (F. Palacios-Rodriguez) from october 2017 to september 2019 on spatio-temporal extreme processes to assess flood hazards [11], [12] (NUMEV funding until Oct 2018)

PhD : Gwladys Toulemonde has co-supervised a PhD thesis defended in september 2019 in an established collaboration with Sanofi and is also involved in two other industrial collaborations (BALEA, Twin Solutions)

PhD in progress :

- Vita Ayoub, "Assimilation of satellite derived flood information for better parameterizing and controlling large scale hydraulic models over data scarse areas", november 2018, Carole Delenneand R. Hostache (LIST, Luxembourg).
- Yassine Bel-Ghaddar, "Data fusion for urban network mapping. Application to sanitation networks", may 2019, Carole Delenneand A. Begdouri (LSIA, Fès, Morocco).
- Joseph Luis Kahn Casapia, "Coupling hydro-ecological reduced models for the simulation of fresh water ecosystems", September 2018, Antoine Rousseau and C. Casenave (INRA, Montpellier).
- Joao Guilherme Caldas Steinstraesser, "Coupling large and small scale shallow water models with porosity in the presence of anisotropy", October 2019, Antoine Rousseau and Vincent Guinot.
- Cécile Choley, "Experimental an numerical study of the street-building exchange during urban floods", November 2019, Pascal Finaud-Guyot.

9.2.3. Juries

Gwladys Toulemonde has participated to the PhD thesis jury of Abdul-Fattah Abu-Awwad defended in June 2019 at the University of Lyon.

Carole Delenne was invited member of the PhD thesis jury of Gabrielle Rudi Chovelon, defended in May 2019 at SupAgro Montpellier.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

Gwladys Toulemonde is involved in the board of the CFEM (commission française pour l'enseignement des mathématiques) since october, 2019, representing the SFdS.

Gwladys Toulemonde is involved in the board of Animath since october, 2019, representing the SFdS.

Gwladys Toulemonde is a member of the organizing committee of the Forum Emploi Math (FEM 2019, Paris).

Antoine Rousseau is member of the scientific board of Fondation Blaise Pascal

Antoine Rousseau is member of the *MakeSEnS* group at Inria, instructed by Inria's management to make proposals for the institute to tackle current environmental issues: see [7]

Antoine Rousseau is co-editor of the national blog binaire, published by Le Monde

9.3.2. Articles and contents

- *Pour une écologie numérique* (in french), blog post on binaire, Antoine Rousseau, 2019.
- *Ces océans qu'on modélise* (in french), blog post on binaire, Antoine Rousseau

  and coauthors, 2019.

9.3.3. Education

In 2019, Antoine Rousseau gave public lectures in the junior school of Aubais, France (30 kids, 10 years old): 2.5 days of introduction to coding.

9.3.4. Interventions

Antoine Rousseau gave a 2h lecture in Lycée Joffre (high school), Montpellier, France (60 students, 18-20 years old). The conference was linked to the 2019-2020 topic for the french engineering schools competition (TIPE): mathematical modelling for oceans. Antoine Rousseau also dedicated one full day to help young students to design their TIPE project.

LIFEWARE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Chetan Aditya was the co-organiser of a thematic workshop entitled "From Bench to Bedside" at the Center for Interdisciplinary research, Paris, April 2019.

Grégory Batt was a co-organizer of the thematic session entitled "Predictive approaches for biological systems engineering" at the JOBIM conference, Nantes, July 2019.

François Fages and Sylvain Soliman were scientific co-chairs of

- the Constraints and Life Sciences Track of CP'2019 25th International Conference on Principles and Practice of Constraint Programming, Stamford, CT, USA, September 30 to October 4, 2019.

François Fages was scientific co-chair of

- Workshop on Computational Systems Biology for Complex Disease CSBCD, ENS Paris-Saclay, Cachan, France, 28-29 Nov. 2019.
- Formal methods for the synthesis of biomolecular circuits Shonan Village, Japan, 2-6 Sep 2019.
- France-Taiwan Summer School on New Strategies in Medical Diagnosis and Precision Medicine, NTU, Taipei, Taiwan, 9-10 July 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Grégory Batt was a member of the program committee of the IFAC Conference on Foundations of Systems Biology in Engineering (FOSBE 2019), Valencia, Spain, and of the scientific committee of Advanced Lecture Course on Computational Systems Biology summer school, Aussois, France.
- François Fages was PC member of
    - CIBCB'19 16th IEEE International Conference on Computational Intelligence in Bioinformatics and Computational Biology – Certosa di Pontignano, Siena - Tuscany, Italy, July 9-11, 2019
    - CMSB'19 17th International Conference on Computational Methods in Systems Biology. Trieste, Italy, September 2019.
    - HSB'19, 6th International Workshop on Hybrid Systems and Biology, will be held at the Charles University, Prague (CZ) on the 6th and 7th April 2019, and is colocated with ETAPS 2019.
    - BIOINFORMATICS'19 10th International Conference on Bioinformatics Models, Methods and Algorithms" co-located with BIOSTEC'19, Prague, Czech republic, Feb 2019.
- Jakob Ruess was a PC member of CMSB'19, the 17th International Conference on Computational Methods in Systems Biology. Trieste, Italy, September 2019.
- Sylvain Soliman was a PC member of CSBio 2019 10th International Conference on Computational Systems-Biology and Bioinformatics — Nice (France), December 4–7, 2019

10.1.2.2. Reviewer

Jakob Ruess was a reviewer for two conferences: *European Control Conference (ECC)* and *Bioinformatics 2020*.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

François Fages is member of

- the Editorial Board of the Computer Science area of the Royal Society Open Science journal, since 2014;
- the Editorial Board of the journal RAIRO OR Operations Research, since 2004.

10.1.3.2. Reviewer - Reviewing Activities

Grégory Batt was a reviewer for *Bioinformatics* and *ACS Synthetic Biology* journals.

François Fages made reviews for the journals *Biosystems* and *Transactions on Computational Biology and Bioinformatics*.

Mathieu Hemery made 5 reviews for the journal *Physical Review E*, and was a reviewer for the journals *Physical Review Letters* and *Royal Society Open Science*.

Jakob Ruess was a reviewer for the journals *Entropy* and *Scientific Reports*.

Sylvain Soliman was a reviewer for *Briefings in Bioinformatics*, and for the *Journal of Theoretical Biology*.

10.1.4. Invited Talks

- Chetan Aditya gave a presentation entitled "Synthetic optogenetic differentiation system for bioproduction in budding yeast" at the EMBL workshop "Creating is Understanding: Synthetic Biology Masters Complexity", September 2019, Heidelberg, Germany
- Grégory Batt gave the following invited talks:
  - Driving cellular processes with quantitative accuracy using real-time control approaches, 6th Cross Disciplinary Genomics Meeting of Sorbonne University, Nov 2019, Paris, France
  - Driving cellular processes with quantitative accuracy using real-time control approaches, SynGen Series UK, Nov 2019, London, UK
  - An experimental platform for automated calibration of antimicrobial resistance models, APHP/IP AMR STORM, Oct 2019, Paris, France
  - Balancing a genetic toggle switch by real-time control and periodic stimulations, International Workshop on Control Engineering and Synthetic Biology, Sept 2019, Oxford, UK
  - Experimental and computational methods for modeling cellular processes, Shonan meeting on Formal methods for the synthesis of biomolecular circuits, Sept 2019, Shonan, Japan
  - Driving cellular processes with quantitative accuracy using real-time control approaches, Seminar of Unité Physico Chimie Curie, Jan 2019, Paris, France
- François Bertaux gave an invited talk at the JOBIM thematic session entitled "Methods for single-cell omics data analysis", Nantes, July 2019.
- Andjela Davidovic gave a presentation entitled "Calibration of stochastic biochemical models using single-cell video-microscopy experiments" at the Stochastic models for biology conference (BioHasard 2019), August 2019, Rennes, France
- François Fages gave invited talk to
  - Turing-completeness of Chemical Reaction Networks in Natural cells and Artificial vesicles (keynote CSBio 2019) The 10th International Conference on Computational Systems-Biology and Bioinformatics. Nice, France. December 4 to 7, 2019
  - Cells as Analog Chemical Computers: Turing Completeness and Synthesis Formal methods for the synthesis of biomolecular circuits Shonan Village, Japan, 2-6 Sep 2019.

- – Modeling and Design of Biological Systems, France-Taiwan Summer School on New Strategies in Medical Diagnosis and Precision Medicin, NTU, Taipei, Taiwan, 9-10 July 2019.
  - – La Cellule un Calculateur Chimique Journées scientifiques Inria, Lyon, 5-7 juin 2019.
  - – La Cellule un Calculateur Chimique Dassault-Systèmes, Vélizy, June 4th 2019.
  - – Calculs Analogiques dans les Programmes Biochimiques Naturels et Synthétiques Colloque d'ouverture 50 ans du Laboratoire Jacques-Louis Lions, Roscoff, France, 4-8 mars 2019.
  - – Calculs analogiques dans les réseaux biochimiques naturels et synthétiques Prix La recherche - 15th edition. Université Paris Dauphine, 4 Feb. 2019.
- Jakob Ruess gave an invited talk at the SYMBIONT meeting entitled "Molecular noise shapes bacteria-phage ecologies", Paris, April 2019.

10.1.5. Leadership within the Scientific Community

- Grégory Batt is co-animator of the working group on Symbolic Systems Biology (GT Bioss).
- Grégory Batt is a member of
  - – the Technical Committee on Systems Biology of IEEE and CSS societies
  - – the scientific board of the French research network on Bioinformatics (GdR BIM)
  - – the scientific committee of the Advanced Course on Computational Systems Biology summer school, in Aussois
- François Fages is member of
  - – the Steering Committee of the International Conference on Computational Methods in Systems Biology, CMSB, since 2008.
  - – the Scientific Committee of the Doctorate School ED 474 FIRE, ex Frontiers in Life Sciences, FdV
  - – the Scientific Committee of the Summer School Modélisation Formelle de Réseaux de Régulation Biologique Ile de Porquerolles du 23 au 28 juin 2019 .

10.1.6. Scientific Expertise

François Fages was

- member of the Jury for Inria Awards 2019
- evaluator of two DFG grant proposals
- reviewer of a program proposal from Institut Pascal - Paris Saclay
- reviewer of professorship application, Indraprastha Institute of Information Technology - Delhi, India.

10.1.7. Research Administration

- Grégory Batt is the deputy director of the department of Computational Biology at Institut Pasteur
- François Fages is member of the "Comité des Projets du centre" Inria Saclay-IdF, and Inria representative for Doctorate School Institut Polytechnique de Paris
- Sylvain Soliman is member of the "Commission Scientifique" of Inria Saclay-IdF

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Summer school: François Fages (teacher 6h) Modélisation Formelle de Réseaux de Régulation Biologique, Ile de Porquerolles.

Summer school: Jakob Ruess (teacher 6h) Blackboard course on Optimally learning dynamical models from data at the "Advanced lecture course on computational systems biology" in Aussois, France, April 2019.

Master: Grégory Batt (coordinator and teacher: 35h) and Jakob Ruess (25h), *Computational Biology*, M1, Interdisciplinary Approaches to Life Sciences (AIRE-LiSc).

Master: Grégory Batt (3h) *Synthetic Biology and Control course in Molecular and Cellular Biology* Sorbonne Université, Paris.

Master: François Bertaux (co-coordinator and teacher: 20h), *Systems Biology*, M1, Master Interdisciplinary Approaches to Life Sciences (AIRE-LiSc).

Master: François Fages (coordinator module 24h and teacher 12h) *C2-19 Biochemical Programming*, Master Parisien de Recherche en Informatique (MPRI), Paris.

Master: François Fages (co-coordinator module 36h and teacher 18h) and Sylvain Soliman (co-coordinator, teacher 18h) INF555 - Constraint-based Modeling and Algorithms for Decision Making ProblemsMaster Artificial Intelligence, Ecole Polytechnique.

Bachelor 3: François Fages (co-coordinator module and teacher 4h30) and Sylvain Soliman (co-coordinator module, teacher 4h30) and Mathieu Hemery (TD 10h) CSE 301b: Constraint Logic Programming.

Bachelor 2: Eléonore Bellot (teacher 64h) *CSE201 Object-oriented Programming in C++* TD and project supervision

L1: Julien Martinelli (teacher 64h) Mathematics and Calculus, Univ. Paris Descartes

10.2.2. Supervision

PhD in progress: Chetan Aditya, "Control of heterogenous synthetic microbial systems", ED FdV, Université Sorbonne Paris Cité, Feb. 2018, Grégory Batt

PhD in progress: Virgile Andréani, Calibration efficace de modèles de résistance bactérienne aux antibiotiques à l'aide d'un plan d'expériences optimal, ED IPP, Ecole Polytechnique, Sept. 2016, Grégory Batt

PhD in progress : Eléonore Bellot, "Réduction de modèles différentiels par résolution de contraintes d'algèbre tropicale (min,+)", ED IPP, Ecole Polytechnique, Sept. 2018, F. Fages & S. Soliman (50-50%)

PhD in progress: Arthur Carcano, "Iterative design of single-cell experiments to learn single-cell models of biological systems", ED FdV, Université Sorbonne Paris Cité, Oct. 2018, Jakob Ruess and Grégory Batt

PhD in progress : Elisabeth Degrand, "Chemical Programming in Non-living Vesicles", ED IPP, Ecole Polytechnique, Oct. 2019, F. Fages & S. Soliman (50-50%)

PhD in progress : Jérémy Grignard, "Apprentissage de modèles à partir de données pour la conception d'expériences de criblage et la recherche de médicaments", ED IPP, Ecole Polytechnique, dec. 2018, F. Fages & T. Dorval, Servier (50-50%)

PhD in progress : Eléa Greugny, "Development and Implementation of a Mathematical Model of Inflammation in the Human Skin", ED IPP, Ecole Polytechnique, Aug. 2019, F. Fages & J. Bensaci & G. Stamatas, Johnson&Johnson Santé Beauté France (1/3-2/3))

PhD in progress : Julien Martinelli, "Apprentissage de modèles mécanistes à partir de données temporelles, application à la personnalisation de la chronothérapie des cancers", ED IPP, Ecole Polytechnique, Oct. 2018, F. Fages & A. Ballesta, Inserm (50-50%)

PhD in progress: Sebastian Sosa Carrillo, "Understanding the cost of protein production in yeast", ED FdV, Université Sorbonne Paris Cité, Feb. 2018, Grégory Batt

Master's Thesis: Orianne Bargain, "Graph matching, theory and SAT implementation", TU Dresden, Germany, Sep. 2019, F. Fages & S. Soliman (50-50%)

Master's Thesis: Elisabeth Degrand, "Evolving Chemical Reaction Networks", KTH Stockholm, Sweden, June 2019, F. Fages & M. Hemery (50-50%)

10.2.3. Juries

- Grégory Batt participated in the jurys of
    - PhD Antoine Barizien, Ecole Potytechnique and Institut Pasteur, *Rapporteur*, Paris, May 2019
    - PhD Mathilde Koch, Ecole Polytechnique and INRA, *Examinateur*, Paris, November 2019
- François Fages participated in the jurys of
    - HDR Sabine Pérès, Université Paris-Saclay, *Reviewer*, 18 Nov. 2019
    - HDR David Safranek, Mazaryk Univ., Czech Republic *Reviewer*, July 2019
    - HDR Sriram Krishnamachary, Indraprastha Institute of Information Technology, Delhi, India, *Reviewer*, April 2019
    - PhD Adrien Husson, Université Paris-Diderot, *Rapporteur*, 16 Dec. 2019
    - PhD Jorgelindo da Viega Moreira, Université Paris-Saclay, *Rapporteur*, 18 April 2019
    - Master Thesis, Orianne Bargain, Graph matching, theory and SAT implementation, Technische Universität Dresden, Germany, *Superviser* October 2019
    - Master Thesis, Zi-Jun Lin, National Taiwan University, *Reviewer*, July 2019
    - Master Thesis, Wei-Chih Huang, National Taiwan University, *Reviewer*, July 2019
    - Master Thesis, Elisabeth Degrand, Evolving Chemical Reaction Networks, Kungliga tekniska ho¨gskolan, Stockholm, Sweden, *Superviser* April 2019,

10.3. Popularization

10.3.1. Articles and contents

- For a Festschrift in honor of Catuscia Palamidessi, François Fages was unexpectedly inspired to compose a small music score and write a short essay on information leakage in music scores [10].
- Jakob Ruess gave an interview for the Swiss Institute of Bioinformatics (SIB) as a past laureate of the SIB Award.

10.3.2. Interventions

- Eléonore Bellot, Mathieu Hemery and Elise Weill Duflos participated at Fête de la Science at Inria SIF, Oct. 2019
- François Fages has received college school students for a visit to our research team with the question "Can we program any function ?", answered negatively by proving Cantor's theorem.
- Mathieu Hemery has animated debates with college school students on Science and Ethics at Inria and Association Arbre des Connaissance, Oct. 2019.

10.3.3. Creation of media or tools for science outreach

François Fages has created several BIOCHAM interactive notebooks that are integrated in the current release of BIOCAHM-4 to illustrate and exercise the main concepts of analog chemical computer and chemical programming, as taught in his Master course at MPRI.

M3DISIM Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, scientific chair

F. Clément, Session *Biomathématiques, Bioinformatique et Biophysique pour la reproduction*, ReproSciences 2019 Toulouse (France), April 24-26

D. Chapelle, M. Genet: Session co-chairs at the 6th International Conference on Computational and Mathematical Biomedical Engineering (CMBE2019), Sendai City (Japan), June 10-12

9.1.1.2. Member of organizing committees

J.M. Allain, Member of the workshop Biomechanics from cells to tissues organising committee

D. Chapelle, Chair of the organizing committee of the VPH2020 conference (Paris, August 2020)

F. Clément, ReproSciences 2019, Toulouse (France), April 24-26

M. Genet, D. Chapelle, Co-organizers of the Paris-Saclay University Biomechanics Seminar Series (Until June 2019)

P. Moireau, Member of the organizing committee of the VPH2020 conference (Paris, August 2020)

9.1.2. Scientific events selection

9.1.2.1. Reviewer

J.M. Allain, Member of the European Society of Biomechanics conference scientific committee

R. Chabiniok, reviewer for FIMH2019

M. Genet, reviewer for the 10th international conference on Functional Imaging and Modeling of the Heart (FIMH, June 6-8, 2019, Bordeaux)

9.1.3. Journal

9.1.3.1. Member of editorial boards

D. Chapelle, Member of the editorial board of journal *Computers & Structures*

D. Chapelle, Member of the editorial board of journal *ESAIM: M2AN*

F. Clément *Frontiers*, review editor (Systems Endocrinology)

P. Le Tallec, Member of the editorial board of journal *Computer Methods in Applied Mechanics and Engineering*

P. Le Tallec, Member of the editorial board of journal *Computer and Structures*

9.1.3.2. Reviewer - Reviewing activities

J.M. Allain, reviewer for "Acta Biomaterialia", "Journal of Anatomy", "Journal of Biomechanics" and "Journal of the Mechanical Behavior of Biomedical Materials"

R. Chabiniok, reviewer for "Philosophical Transactions of the Royal Society A"

F. Clément, reviewer for "Endocrinology", "PloS Comp. Biol.", "Appl. Math. Mod."

M. Genet, reviewer for "Acta Biomaterialia" and "Inverse Problems in Science & Engineering"

D. Chapelle, reviewer for "Biomechanics and Modeling in Mechanobiology", "Computers & Structures", "International Journal for Numerical Methods in Biomedical Engineering"

S. Imperiale, reviewer for "Numerische Mathematik" and "Proceeding of the royal society A"

P. Moireau, reviewer for "Journal of Computational Physics", "Biomechanics and Modeling in Mechanobiology"

9.1.4. Invited talks

F. Clément. Invited seminar at MaiAGE (France), invited mini-symposium talk to Equadiff, Leiden, The Netherlands

M. Genet, invited keynote at the 90th Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM, February 18-22), Vienna, Austria

M. Genet, invited keynote at the francilian mechanics meeting (RFM, Mai 27-28), Fontainebleau

M. Genet, invited keynote at the "Biomechanics from cell to tissue" workshop (November 8), Gif-sur-Yvette

P. Le Tallec, invited speaker at at the 13th International Conference on Advanced Computational Engineering and Experimenting (ACEX, July 1-5), Athens, Greece

D. Chapelle, invited lecturer at iHeart workshop (22-24 July), Varese, Italy

P. Moireau, invited lecture at the GDR MAMOVI 2019 days, Tours, France

P. Moireau, invited lecture at BME symposium 2019, Ecole Polytechnique, France

P. Moireau, invited seminars at LMA Marseille France and CMAP Polytechnique, France

9.1.5. Leadership within the scientific community

D. Chapelle, Member of the board of directors of the VPH Institute

D. Chapelle, Member of the steering committee of the BioMedical Engineering (BME) Institute coordinated by Ecole Polytechnique

F. Clément, member of the direction and scientific board of GdR REPRO (Integrative and translational approaches of human and animal reproduction)

F. Clément, expert of the BCDE (Cell Biology, Development and Evolution) ITMO (Multi OrganizationThematic Institute) of the French National Alliance for Life and Health Sciences Aviesan.

P. Moireau, Member of the steering committee of Department of Mathematics of Université Paris Saclay and Jacques Hadamard Foundation

9.1.6. Scientific expertise

J.M. Allain, Reviewer for the NSERC (Canadian ANR)

R. Chabiniok, Reviewer for Swiss National Science Foundation

F. Clément, member of the INRA DR2 admissibility and admission juries "Agronomie, biologie et amélioration des plantes, sciences du numérique, sciences économiques et sociales"

M. Genet, Reviewer for the Swedish Foundation for Strategic Research

S. Imperiale, Consultant for CEA

P. Moireau, Reviewer for ISCD (Data science Institute, Paris Sorbonne Université)

P. Moireau, Reviewer for ANR and Member of the evaluation committee 46 "Numercial models, simulations, applications"

P. Moireau, member of the MAP5 Paris Descartes, MCF (assistant professor) admission jury

9.1.7. Research administration

J.M. Allain, Scientific Advisory Board, chair BioMecAM

R. Chabiniok, in charge of the objectives of Inria Associate team ToFMOD (with UT Southwestern Medical center Dallas, USA)

D. Chapelle, Head of Science of Inria Saclay-Ile-de-France, and member of the Inria Evaluation Committee

P. Moireau, Member of the LMS board of direction

P. Le Tallec, Director of the Laboratory of Solid Mechanics at Ecole Polytechnique

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Bachelor: J.-M. Allain, Supervision of the introductory projects in physics, 15h, B1, Ecole Polytechnique, France

Bachelor: J.-M. Allain, "Classical mechanics", 24h, B2, Ecole Polytechnique, France

Bachelor: J.-M. Allain, "Advanced labwork", 12h, B3, Ecole Polytechnique, France

Bachelor: M. Genet, "Continuum Mechanics I", B3, 40h, École Polytechnique, France

Bachelor: M. Genet, "Continuum Mechanics II", B3, 40h, École Polytechnique, France

Bachelor: S. Imperiale, "MA102 – Analyse pour les EDP", 24h, B3, ENSTA ParisTech, France

Bachelor: P. Le Tallec , "Mécanique des Milieux Continus 2. ", 24h, L3, École Polytechnique, France

Bachelor: P. Le Tallec , "Mechanics of Continuous Media and Structure. ", 24h, Y4, Shanghai Jiao Tong Elite Institute of Technology, China

Master: J.-M. Allain, "Statistical mechanics: application to cell motility", 20h, M2, Ecole Polytechnique, France

Master: D. Chapelle, "Biomechanical Modeling of Active Tissues", 33h, M2, Université Paris-Saclay, France

Master: M. Genet, "Plasticity and Fracture", 18h, M1, Ecole Polytechnique, France

Master: P. Le Tallec, "Solid and Continuum Mechanics", 12h, M1, Master of Nuclear Energy, Université Paris-Saclay, France

Master: P. Moireau, "Biomechanical Modeling of Active Tissues", 8h, M2, Université Paris-Saclay, France

Master: P. Moireau, "Méthodes et problèmes inverses en dynamique des populations", 16h, M2, UPMC, France

Master: P. Moireau, "AMS305 – Complétion de données et identification dans les problèmes gouvernés par des équations aux dérivées partielles", 16h, M2, Université Paris-Saclay, France

9.2.2. Supervision

PhD: F. Caforio, "Modélisation mathématique et numérique de la propagation d'ondes élastique dans le coeur", supervisors: D. Chapelle and S. Imperiale, defended in January

PhD: F. Kimmig, "Multi-scale modeling of muscle contraction – From stochastic dynamics of molecular motors to continuum mechanics, in interaction with experimental assays", supervisors: M. Caruel and D. Chapelle, defended in December

PhD: F. Robin "Multiscale modeling of the morphodynamics in ovarian follicles", supervisors: F. Clément & Romain Yvinec [INRA], defended in September

PhD: F. Wijanto, "Multiscale Mechanics of soft tissues", supervisors: J.-M. Allain and M. Caruel, defended in December

PhD in progress: G. Ballif "Stochastic multiscale modeling in developmental and reproductive biology", started October 2019, supervisors: F. Clément & R. Yvinec [INRA]

PhD in progress: J. Manganotti, "Energy preserving cardiac circulation models", started october 2019, supervisors: S. Imperiale and P. Moireau,

PhD in progress: N. Tueni, "Multiscale properties of the passive cardiac muscle", started 01/2018, supervisors: J.M. Allain and M. Genet

PhD in progress: C. Giraudet, "Cornea biomechanics", started 10/2018; supervisors: J.M. Allain and P. Le Tallec

PhD in progress: E. Berberoglu (ETHZ, Switzerland), "Image Guided Computational Cardiac Mechanics", started February 2017, supervisors: M. Genet and S. Kozerke (ETHZ, Switzerland)

PhD in progress: C. Della Valle, "Modélisation et estimation des dynamiques d'assemblage de proteines", supervisors: M. Doumic and P. Moireau

PhD in progress: M. Gusseva, "Cardiac Biomechanical Modeling for Chronic Ventricular Loading", supervisors: R. Chabiniok, D. Chapelle, T. Hussain, started in December 2017

PhD in progress: A. Le Gall, "Cardiac modelling for monitoring purposes during general anaesthesia and at Intensive Care Unit", supervisors: R. Chabiniok, D. Chapelle, E. Gayat, started in November 2016

PhD in progress: C. Patte, "Lung multiscale poromechanical modeling: from breathing to pulmonary fibrosis-induced chronic remodeling", supervisors: M. Genet and D. Chapelle, started November 2017

PhD in progress: J. Joachim "Développement d'une nouvelle méthode d'administration automatisée des médicaments utilisés chez les patients sous anesthésie générale basée sur un monitorage totalement non-invasif", supervisor: E. Gayat, started September 2018

9.2.3. *Juries*

J.M. Allain, PhD Jury of T. Cochereau (referee), Grenoble University, PhD Advisor L. Bailly, March 18

J.M. Allain, PhD Jury of T. Rongsawat (referee), Montpellier University, PhD Advisor H. Sentenac, December 13

D. Chapelle, PhD Jury of M. Pfaller (referee), TUM, PhD Advisor W. Wall, April 26

D. Chapelle, PhD Jury of F. Vallée, PhD Advisor E. Gayat, Sorbonne Université, June 20

D. Chapelle, PhD Jury of T. Boucneau, PhD Advisor X. Maître, Université Paris-Saclay, July 3

F. Clément, PhD Jury of H. Martin, Sorbonne Université, July 15

F. Clément, PhD Jury of A. Perrillat-Mercerot, Université de Poitiers, October 22

P. Moireau, PhD Jury of Lorenzo Sala, PhD Advisor C. Prud'homme, Université de Strasbourg, September 27

P. Moireau, PhD Jury of Sebastian Reyes Riffo, PhD Advisor J. Salomon, Université Paris Dauphine, November 29

P. Moireau, PhD Jury of François Kimmig, PhD Advisor D. Chapelle, Institut Polytechnique de Paris, December 6

9.3. Popularization

C. Patte, J. Diaz and J. Manganotti, leading of a scientific activity for the Fête des Sciences day organized by Inria. October 11

C. Patte, creation of a scientific activity for middle and high school students as part of a popularization doctoral mission

C. Patte, supervision of a research activity for the RJMI (Rendez-vous des Jeunes Mathématiciennes et Informaticiennes) organized by Inria. October 21 & 22

<p style="text-align:center;color:red;font-weight:bold">MAGIQUE-3D Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- Hélène Barucq co-organized committee of "Journées Ondes du Sud-Ouest" (JOSO 2019), March, 12-14. https://hal.archives-ouvertes.fr/JOSO2019
- Hélène Barucq, Florian Faucher and Ha Pham organized the "Ants workshop on computational helioseismology" in Bordeaux, December, 3-5, https://project.inria.fr/antsworkshop201912/
- Hélène Barucq coorganized a minisymposium on "Geophysical Applications" at ICIAM 2019 in Valence, July, 15-19, https://iciam2019.org/
- Julien Diaz and Sébastien Tordeux coorganized a minisymposium on "Advanced numerical tools for wave propagation simulation" at ICIAM 2019 in Valence, July, 15-19, https://iciam2019.org/
- Julien Diaz coorganized an autumn school on "High performance numerical simulation", https://project.inria.fr/hpcschool2019/, in Bordeaux, November, 4-8. This school gathered 30 participants, mainly PhD students and post-doc. It aimed at simulating a physical problem, from its modeling to its implementation in an high performance computing (HPC) framework. The physical problem considered was the harmonic wave propagation. The hands-on sessions were conducted on the Federative Platform for Research in Computer Science and Mathematics (PlaFRIM) machine.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Hélène Barucq and Julien Diaz were members of the scientific committee of Waves 2019 https://waves2019.at
- Sébastien Tordeux was member of the scientific committee of The international Russian-french workshop, Differential equations and Mathematical Modeling, Khanty-Mansiisk, Russia 25-29 août 2019

10.1.3. Journal

10.1.3.1. Reviewer

Members of Magique 3D have been reviewers for the following journals:

- Computer Methods in Applied Mechanics and Engineering
- Geophysics
- Journal of Computational Physics
- Journal of Scientific Computing
- Numerical Methods in Engineering
- Geophysical Journal International
- Computational Geosciences (COMG)

10.1.4. Leadership within the Scientific Community

Hélène Barucq is elected member of the Liaison Committee of SMAI-GAMNI (Society of Applied and Industrial Mathematics - Group for promoting the Numerical Methods for Engineers).

10.1.5. Scientific Expertise

- Julien Diaz was expert for the evaluation of Millennium Science Initiative project for the government of Chile.
- Since 2017, Hélène Barucq has been chairwoman of a committee which evaluates research projects in Mathematics, Computer Science, Electronics and Optics to be funded by the Regional Council New Aquitaine
- Since 2018, Hélène Barucq has been scientific officer for E2S project. She participates in the evaluation of each E2S call. She is also member of a committee having in charge the recruitment of non permanent researchers for E2S.

10.1.6. Research Administration

- Julien Diaz is elected member of the Inria Technical Committee and of the Inria Administrative Board. Since 2018, he has been the head of the Mescal team of LMAP.
- Justine Labat is elected member of Laboratory Commitee of LMAP.
- Victor Péron is appointed member of the CER (Commission des emplois de recherche) of Inria Bordeaux Sud-Ouest.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master : Julien Diaz, Transformées, 24h Eq. TD, M1, EISTIA, France

Licence : Rose-Cloé Meyer, Mathématiques appliquées, 22.5h Eq. TD, L1, UPPA, France

Licence : Rose-Cloé Meyer, Développements limités, suites et séries, 19.5h Eq. TD, L2, UPPA, France

Licence : Marc Duruflé, Équations différentielles, 20h Eq. TD, L3, Enseirb-MatMeca, France

Licence : Marc Duruflé, Algorithmique Numérique, 50h Eq. TD, L3, Enseirb-MatMeca, France

Licence : Marc Duruflé, Outils Mathématiques 3-D, 37h Eq. TD, L3, Enscpb, France

Master : Marc Duruflé, Calcul scientifique en C++, 96h Eq. TD, M1, Enseirb-MatMeca, France

Licence : Marc Duruflé, Calcul scientifique en Fortran90, 20h Eq. TD, L3, Enseirb-MatMeca, France

Licence : Nathan Rouxelin, Mathématiques appliquées, 22.5h Eq. TD, L1, UPPA, France

Licence : Nathan Rouxelin, Modèles mathématiques pour l'informatique, 19.5h Eq. TD, L1, UPPA, France

Master : Florian Faucher, Inversion / optimisation, 10.5h Eq. Cours et TD, M2, Université de Pau et des Pays de l'Adour, France

Licence : Justine Labat, Algèbre pour l'informatique, 19.5h Eq. TD, L1, UPPA, France

Licence : Justine Labat, Introduction aux Probabilités, 12.5h Eq. TD, L2, UPPA, France

Licence : Victor Péron, Analyse 2, 39 Eq. TD, L1, UPPA, France

Licence : Victor Péron, Mathématiques appliquées, 15 Eq. TD, L1, UPPA, France

Licence : Victor Péron, Mathématiques appliquées, 19.5 Eq. TD, L1, UPPA, France

Licence : Victor Péron, Analyse numérique des systèmes linéaires, 48.75 Eq. TD, L3, UPPA, France

Licence: Géométrie analytique, 20h Eq. TD, UPPA, France

Master : Victor Péron and Sébastien Tordeux, Analyse numérique des EDP 1: différences finies, 75 eq. TD, Master1, UPPA, France

Master : Victor Péron and Sébastien Tordeux, Introduction aux phénomènes de propagation d'ondes, 38 eq. TD, Master 2, UPPA, France

Master : Robin Tournemenne, Math-Info, 64h eq. TD, L3+M1, ENSAM Bordeaux, France

10.2.2. Supervision

PhD : Aurélien Citrain, Méthode d'éléments finis hybride pour la simulation des ondes sismiques : couplage des discrétisations Galerkine Discontinue et éléments spectraux, December 16th, Hélène Barucq and Christian Gout (Insa Rouen).

PhD : Justine Labat, Modélisation multi-échelle de la diffraction des ondes électromagnétiques par de petits obstacles, November 28th, Victor Péron and Sébastien Tordeux.

PhD in progress : Alexandre Gras, Hybrid resonance for sensing applications, IOGS, October 2017, Philippe Lalanne(IOGS), Marc Duruflé, Hélène Barucq (Magique 3D)

PhD in progress : Pierre Jacquet, Time domain Full Waveform Inversion involving hybrids numerical method to characterize elasto-acoustic media. ,October 2017, Hélène Barucq and Julien Diaz.

PhD in progress: Victor Martins Gomez, Experimental characterization and modeling of seismo-electromagnetic waves, Université de Pau et des Pays de l'Adour, October 2018, Hélène Barucq and daniel brito (LFCR)

PhD in progress : Rose-Cloé Meyer, Modeling of conducting poro-elastic media using advanced numerical methods , Université de Pau et des Pays de l'Adour, October 2018, Hélène Barucq and Julien Diaz

PhD in progress : Nathan Rouxelin, Advanced numerical modeling of acoustic waves propagating below the surface of the Sun, Université de Pau et des Pays de l'Adour, October 2018, Hélène Barucq and Juliette Chabassier

PhD in progress : Chengyi Shen, Approches expérimentale et numérique de la propagation d'ondes sismiques dans les roches carbonatées, October 2016, Julien Diaz and Daniel Brito (LFCR).

PhD in progress : Margot Sirdey, Méthode de Trefftz pour l'électromagnétisme, October 2019, Sébastien Tordeux and Sébastien Pernet (Onera).

PhD in progress : Vinduja Vasanthan, Tent Pitcher algorithm for space-time integration of wave problems, October 2019, Hélène Barucq and Julien Diaz.

PhD in progress : Stefano Frambati, Isogeometric analysis of sharp boundaries in full waveform inversion, January 2019, Hélène Barucq and Julien Diaz.

Master 2 internship : Ilyas Bouchni, Optimisation de maillage pour l'imagerie sismique, Université de Montpellier, Sept. 2019.

Master 2 internship : Vinduja Vasanthan, Couplage élasto-acoustique en domaine fréquentiel par des méthodes de type Galerkine Discontinues Hybride , Insa Rouen, Sept. 2019.

10.2.3. Juries

- Victor Péron : Jérôme Tomezyk (Université Polytechnique Hauts-de-France), Résolution numérique de quelques problèmes du type Helmholtz avec conditions au bord d'impédance ou des couches absorbantes (PML), July 2nd 2019

- Julien Diaz : Soumaya Oueslati (Université de Cergy-Pontoise), "A new variational formulation for electromagnetic scattering problem using integral method with high order impedance boundary condition – Small perturbation of an interface for Stokes system", PhD thesis, June 12th 2019

- Julien Diaz : Aurélien Citrain (Insa de Rouen), "Méthode d'éléments finis hybride pour la simulation des ondes sismiques : couplage des discrétisations Galerkine Discontinue et éléments spectraux", PhD thesis, December 16th 2019

- Sébastien Tordeux : Pierre Schickele (Université de Toulouse),"Modélisation de l'émission EM de faisceaux de câbles complexes dans un environnement 3D", december 18th 2019

10.3. Popularization

10.3.1. Interventions

- Justine Labat participated in scientific 'speed datings' during the 'Filles et Maths' day at Pau in February 2019.

- Juliette Chabassier participated to the festival Club Med'iation in May 2019.

- Juliette Chabassier participated to many interventions of Louis 14.0, a scientific and artistic show.

- Juliette Chabassier animated a workshop around the virtual piano in La Couronne in Nov 2019.

- Juliette Chabassier, Augustin Ernoult and Alexis Thibault participated to the "Articulations workshop" in Dec 2019.

- Juliette Chabassier participated to a workshop around the Meta-Piano-Teq with Jean Haury in Dec 2019.

- Sébastien Tordeux gave a talk on numerical analysis in the Cercle Sofia Kovalevskaïa of Toulouse in May 2019

- Sébastien Tordeux was member of the judging comittee for the "Tournois Français des Jeunes Mathématiciennes et Mathématiciens" in May 2019

10.3.2. Creation of media or tools for science outreach

Juliette Chabassier co-created with the Ensemble Les Précieuses the show Louis 14.0 that presents how ancient instruments can be restored via numerical techniques, and played in real time in a musical and theatral show.

<p align="center" style="color:red">MAMBA Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- J. Clairambault has organised with Stylianos Xanthopoulos (University of the Aegean), Nikolaos Sfakianakis (University of St. Andrews), Nikos Kavallaris (University of Chester) and Pierre-Alexandre Bliman the Summer school and workshop *MBMC-Samos 2019* "Mathematical Biology on the Mediterranean Conference", Samos island, Greece, September 1-14, see http://actuarweb.aegean.gr/mbmc2019. This conference, envisioned to be the first of a series of such MBMCs, consisted of two twin events, the Summer school and the workshop (1st and 2nd week) that were funded by Inria DGDS and DPEI, together with EMS and ESMTB.

- Dirk Drasdo is member of the Program committee of the SBMC 2020 (Heidelberg, Germany), May, 25-27.

- L. Almeida, B. Perthame and D. Peurichard coordinate a math-bio work group every month at LJLL

- D. Peurichard and D. Drasdo coordinate the internal 'Open MAMBA seminar' - seminar for PhD and post-doctoral students of the MAMBA team

- Pierre-Alexandre Bliman, together with Christian Schaerer (Polytechnic School, Universidad Nacional de Asunción, Paraguay), organized the Workshop on Advanced Control Techniques for Mosquito-Borne Diseases 2019 (WTAEM 2019) 11–17 november 2019, https://sites.google.com/view/wtaem/wtaem

- Benoit Perthame organized a France-China summer school 1-5 july 2019 (partnership LIA-SFMA, Institute of Natural Science and Department of mathematics, Shanghai Jiao Tong University)

9.1.1.2. Member of the Organizing Committees

- On October 7th and 8th, Marie Doumic co-organized the symposium *Deciphering the functional mechanisms of biological macromolecules* with Raphaël Guérois (CEA) and Marc Baaden (IBPC).

- Marie Doumic was a member of the organisation committee for the 50th anniversary of J-L. Lions laboratory (November 27-29).

- Marie Doumic co-organised the Workshop "Mathematical Models in Cancer", August 1-2, Vienna, Austria.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

- Pierre-Alexandre Bliman was in the Editorial Board of the conference "European Control Conference", Naples (Italy), 25-28 June 2019.

9.1.2.2. Reviewer

- Pierre-Alexandre Bliman, reviewer for the conferences IEEE Conference on Decision Control, European Control Conference.

- Dirk Drasdo, CELLMECH 2019 (June 3-6, 2019): Quantitative single-cell-based modelling reveals predictable response of growing tumour spheroids on external mechanical stress, and how this informs liver regeneration

- Dirk Drasdo, 3rd Workshop on BioFabrication & Cancer, 24-25.09.2019: Quantitative single-cell-based modelling reveals predictable response of growing tumour spheroids on external mechanical stress, and how this informs liver regeneration

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Dirk Drasdo is associate editorial member of J. Theor. Biol. Royal Society Open Science, and The Scientific World Journal.

- Marie Doumic is associate editor of Kinetic and Related Models and of the Journal of Mathematical Biology.

- Diane Peurichard and Nastassia Pouradier Duteil are guest editors of a special issue for the journal Mathematical Biosciences and Engineering, planned in september 2020.

- Benoit Perthame is associate editor of Bol. SeMA, Milan Journal of Mathematics, M3AS, Mathematical Medicine and Biology (IMA journal), Comm. in PDE,

9.1.3.2. Reviewer - Reviewing Activities

We reviewed for:

BBA Reviews Cancer, Mathematical Modelling of Natural Phenomena, Mathematical Biosciences, Mathematical Biosciences and Engineering, Bioinformatics, BBA Molecular Cell Research, Computers in Biology and Medicine, Biosystems, J Math Biol, Cancer Research, Bull Math Biol, J Theor Biol, Science Advances ;

Symmetry, Mathematical Biosciences and Engineering ;

IEEE Transactions on Automatic Control, Mathematical Biosciences;

Transactions of the London Mathematical Society, Journal of Mathematical Biology;

Annales de l'Institut Henri Lebesgue, SIAM Applied Math, J. Math. Biol, Asymptotic Analysis.

9.1.4. Invited Talks

- P.-A. Bliman's presentations at seminars and workshops:
  - Laboratoire Analyse, Géométrie et Applications UMR 7539, Université Paris 13, February 2019;
  - Institut de Mathématiques de Bordeaux UMR 5251, March 2019;
  - Universidad Nacional de Asunción, Asunción, Paraguay, March 2019 Université de Guyane, Cayenne, April 2019;
  - Universidade Federal de Amapá, Macapá, Brazil, April 2019;
  - Laboratoire Jacques-Louis Lions, Sorbonne Université, Paris, June 2019;
  - COPPE, Universidade Federal de Rio do Janeiro, Brazil, July 2019;
  - Fifth International Conference on Computational and Mathematical Population Dynamics, Fort Lauderdale (FL), USA May 2019;
  - Mathematical Biology on the Mediterranean Conference, Samos, September 2019;
  - Workshop on Advanced Control Techniques for Mosquito-Borne Diseases 2019, Asunción, Paraguay, November 2019.

- J. Clairambault's presentations at seminars and workshops:
  - Maths club Paris VII, January 2019;
  - LJLL 50-year anniversary, Roscoff March 2019;
  - Seminar Math-Bio, LAGA, Université Paris XIII, Villetaneuse, April 2019;
  - Mathematical Methods and Models in Biosciences Conference, IMPAN, Bedlewo, Poland, June 2019;

- – Mathematical Biology on the Mediterranean Conference, Samos, Greece, September 2019;
- – Symposium on Modelling approaches for cancer therapy, Cité scientifique, Lille, September 2019;
- – Q-Bio symposium Pasteur Institute, December 2019.
- • D. Peurichard's presentations at seminars and workshops:
  - – Colloque d'ouverture 50 ans du LJLL, Roscoff, March 2019;
  - – ICIAM 9th International Congress on Industrial and Applied Mathematics, Valencia, july 15th-19th;
  - – Math and cancer workshop in Vienna, 1-3th august, 2019;
  - – MAMOVI days (MAthématiques de la MOdélisation du VIvant), Tours, 4th-6th sep, 2019;
  - – Mathematical Biology on the Mediterranean Conference, Samos, Greece, September 2019;
  - – PDE-biology workshop, Orsay, 25-26 nov 2019;
  - – Math-bio seminar, Bordeaux, December, 2019.
- • N. Pouradier Duteil's presentations at seminars and workshops:
  - – Colloque d'ouverture 50 ans du LJLL, Roscoff, March 2019;
  - – Journées Picard, Roscoff, March 2019;
  - – Séminaire du laboratoire Jacques-Louis Lions, Paris, March 2019;
  - – Workshop "PDEs and Applications in Life Sciences", Penn State, USA, October 2019;
  - – INdAM workshop "Recent advances in kinetic equations and applications", Rome, Italy, November 2019.
- • M. Doumic's presentations at seminars, workshops and conferences:
  - – Inria-KAIST (Korean Advanced Institute of Science and Technology) meeting, Paris, March 28th.
  - – Amiens PDE seminar, May 27th.
  - – PDE Day, June 7th, Le Havre.
  - – Four-hour course at the 2019 Summer School on Mathematical Biology, July 1-4, Shanghai.
  - – Plenary talk at the AIP 2019 Conference (Applied Inverse Problems), July 7-11, Grenoble.
  - – First meeting of MeDyNa GDR, October 7-10, Sainte Montaine.
  - – DEA conference in Krakow, September 18-20.
  - – CENTURI Conference in Marseille, November 18th, with W-F. Xue.

9.1.5. Leadership within the Scientific Community

Dirk Drasdo is member of the scientific leadership board of the German flagship project LiSyM (Liver Systems Medicine) financed by BMBF (Germany).

Marie Doumic is a member of the board of the GDR Medyna (self-assembly of peptides and proteins).

9.1.6. Scientific Expertise

M. Doumic is a member of ITMO BMSV (interdisciplinay institute for structural and biomolecular basis of living matter) experts' committee, representing Inria.

M. Doumic is a member of the scientific committee of the mathematical institute INSMI of CNRS, and a member of the interdisciplinary committee CID 51 of CNRS.

9.1.7. Research Administration

- Dirk Drasdo is associated with IfADo Leibniz-Institute. He directs a research group bi-localized at Inria de Paris and IfADo, Dortmund.
- Dirk Drasdo is member of the scientific leadership board of the German flagship project LiSyM (Liver Systems Medicine) financed by BMBF (Germany).
- D. Peurichard is a member of the CSD (Comité de Suivi Doctoral) at Inria
- P.-A. Bliman is the coordinator of the ECOS-Nord project C17M01 "News methods for control of dengue and arboviroses", and international coordinator of the STIC AmSud project 20-STIC-05 "New Methods for Biological Control of the Arboviruses" epidemics".
- M. Doumic is a member of the organisation committee for mentorship at Inria Paris.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Most non permanent researchers have teaching activities in Sorbonne Université. We detail below only some of the teaching activities of permanent researchers.

- N. Pouradier Duteil, "Travaux de Recherche Encadrés", 10h, M1, Jussieu
- D. Drasdo, "Agent-based models of tissue organization", Paris 24 h / yr, M2 course, UPMC, Paris, France
- D. Drasdo: "Integrated and spatial-temporal multiscale modeling of liver guide in vivo experiments in healthy & chronic disease states: a blue print for systems medicine?", M2 course, 1 h, Ecole Polytechnique, France
- D. Peurichard, TD M1 in Jussieu, "Fondements des méthodes numériques", 40h
- D. Peurichard, M1 TD in Jussieu, "Approximation des EDP", 24h
- D. Peurichard, M2 4 hours course in Strasbourg in the interdisciplinary program entitled 'Physique Cellulaire'
- B. Perthame, M2 course "Introduction to mathematical biology"
- M. Doumic, M2 Course "Inverse Problems in Population Dynamics"

(24 hours)

9.2.2. Supervision

PhD in progress:

- P.-A. Bliman is co-advisor of the PhD student Pastor E. Pére-Estigarribia (with Ch. Schaerer, at UNA, Paraguay);
- L. Almeida is Emma Leschiera's co-supervisor (with Chloé Audebert, Sorbonne Université, and Tommaso Lorenzi, St Andrew's university) and Jesus Bellver Arnau's supervisor;
- M. Doumic is Mathieu Mezache's co-supervisor (with H. Rezaei, Inra - defended in December 2019), Cécile della Valle's co-supervisor (with Philippe Moireau, Inria Saclay), Julia Delacour's co-supervisor (with Christian Schmeiser, Vienna), Hugo Martin's co-supervisor (with Pierre Gabriel, Université de Versailles-St Quentin - defended in July 2019), Adrien Ellis' co-supervisor (with Marc Hoffmann, Université Paris Dauphine - begun in October 2019) and Anaïs Rat co-supervisor (with Magali Tournus, Centrale Marseille - begun in October 2019);
- B. Perthame is Alexandre Poulain's supervisor, Giorgia Ciavovella's co-supervisor (with Roberto Natalini, Roma), Federica Bubba's co-supervisor (with Pasquale Ciarletta, Politecnico di Milano) and Noemi David's co-supervisor (with, University of Bologna);
- Diane Peurichard is Valeria Caliaro's supervisor;

- Philippe Robert is Gaëtan Vignoud's advisor.

M2 internship: P.-A. Bliman was Mahamadou Sylla's advisor; M. Doumic was Adrien Ellis' advisor; D. Peurichard was Valeria Caliaro's advisor; Luis Almeida is Jesus Bellver Arnau's supervisor and Jorge Hernandez co-supervisor.

9.2.3. Committees

- J. Clairambault's international project evaluation activity in 2019: ICREA, EPSRC

- J. Clairambault's PhD defence committees: Ghassen Haddad (JC supervisor), Paris March 1st; Mohammed Ladjimi, Lille, September 25.

- J. Clairambault is member of the ANR evaluation panel "Mathematics and their interactions for biology and health"

- M. Doumic is a member of the interdisciplinary committee 51 of CNRS (CID51): selection committee for junior and senior research scientists of CNRS.

- M. Doumic was a member of the Inria Paris research center selection committee for junior scientists.

- M. Doumic's Ph.D defence committees: Hugo Martin (MD supervisor), July Paris, Frédérique Robin (MD chair), September 26, Paris; Emma Horton (MD reviewer), November 14th, Bath; Mathieu Mezache (MD supervisor), December 17th, Paris; Samuel Nordmann, October 11th, Paris.

- D. Peurichard is a member of the Inria "Comission des emplois scientifiques" for selecting PhD, delegation and post-doctoral candidates at Inria.

- D. Peurichard is a member of the ARP/SRP selection comittee for Inria.

9.3. Popularization

Diane Peurichard presented a talk in the framework of the "Remise des prix des Olympiades de mathématiques de Paris" (prize for national mathematics competition for young french students), Wednesday 29th, June 2019.

Diane Peurichard presented her work at the Inria scientific days in Lyon from June 5th- 7th, 2019.

At the occasion of scientific seminaries, Pierre-Alexandre Bliman gave interviews to TV channels in Paraguay: Paraguai TV (March 28, 2019); and in Brazil: Globo Amapá (April 16, 2019), Balanço Geral AP (April 17th, 2019).

Marie Doumic gave a presentation of her research for middle-school pupils in internship (December 2019) and for highschool mathematics teachers (March 2019, in Lille), and did "speed-dating interviews" with high school students (February 12th, NGO "Sephora Berrebi").

Benoit Perthame gave public talks at Tamkang university (Taipei) and Nancy.

MATHNEURO Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events: Organisation

7.1.1.1. General Chair, Scientific Chair

Mathieu Desroches was one of the Program Chairs of the Waves Côte d'Azur conference, held in Nice, 4-7 June, 2019.

7.1.1.2. Member of the Organizing Committees

Mathieu Desroches was on the Scientific Committee of the Waves Côte d'Azur conference, held in Nice, 4-7 June, 2019.

Olivier Faugeras and Romain Veltz were on the Advisory Board of the 5th International Conference on Mathematical Neuroscience, held in Copenhagen (Denmark), June 24 - 26, 2019.

7.1.2. Journal

7.1.2.1. Member of the Editorial Boards

Olivier Faugeras is the co-editor in chief of the open access Journal of Mathematical Neuroscience. This journal has a 2-year Impact Factor of 2.091.

Mathieu Desroches was Guest Editor of a Special Issue on "Excitable Dynamics in Neural and Cardiac Systems" of the journal Communications in Nonlinear Science and Numerical Simulation. This journal has 5-year Impact Factor of 3.637.

7.1.2.2. Reviewer - Reviewing Activities

Fabien Campillo acts as a reviewer for Journal of Mathematical Biology.

Mathieu Desroches acts as a reviewer for Physica D, SIAM Journal on Applied Dynamical Systems (SIADS), PLoS Computational Biology, Chaos: An International Journal of Nonlinear Science, Journal of Mathematical Biology, Journal of Neurophysiology, Journal of Mathematical Neuroscience, Nonlinear Dynamics.

Olivier Faugeras acts as a reviewer for the Journal of Mathematical Neuroscience, the Journal of Computational Neuroscience, the SIAM Journal on Applied Dynamical Systems (SIADS).

Martin Krupa acts as a reviewer for Nonlinearity, Proceedings of the National Academy of Sciences of the USA (PNAS), the SIAM Journal of Applied Dynamical Systems (SIADS).

Romain Veltz acts as a reviewer for Neural Computation, eLIFE, SIADS, PNAS, Journal of the Royal Society Interface, Plos Computational Biology and Acta Applicandae Mathematicae.

7.1.3. Invited Talks

Emre Baspinar, "A geometric model with frequency-phase and its application to image enhance-men", conference "Shape Analysis in Biology", Sorbonne Université, Paris, November 2019

Emre Baspinar, "A sub-Riemannian cortical model with frequency-phase and its application to orientation map construction.", 1st meeting of the NeuroMod Institute, Fréjus (France), July 2019.

Emre Baspinar, "A sub-Riemannian model of the visual cortex based on frequency-phase and its applications" [poster], 5th International Conference on Mathematical Neuroscience, Copenhagen (Denmark), June 2019.

Emre Baspinar, "A sub-Riemannian cortical model with frequency-phase and its application to orientation map construction.", Waves Côte d'Azur Conference, Nice (France), June 2019.

Mathieu Desroches, "Canards in excitatory networks", XXXIXth Dynamics Days Europe Conference, Rostock (Germany), September 2019.

Mathieu Desroches, "Canards and spike-adding in neural bursters", International Congress on Industrial and Applied Mathematics (ICIAM), Valencia (Spain), July 2019.

Mathieu Desroches, "Canards in excitatory networks", SIAM Conference on Application of Dynamical Systems, Snowbird (USA), May 2019.

Mathieu Desroches, "Slow-fast analysis of bursting oscillations: old and new", Bilateral International Meeting UK-France, Royal Society, Chicheley Hall, Milton Keynes (UK), February 2019.

Olivier Faugeras, "The meanfield limit of a network of Hopfield neurons with correlated synaptic weights", Bilateral International Meeting UK-France, Royal Society, Chicheley Hall, Milton Keynes (UK), February 2019.

Louisiane Lemaire, "Modeling the initiation of cortical spreading depression triggered by the hyperactivity of GABAergic neurons" [poster], 1st meeting of the NeuroMod Institute, Fréjus (France), July 2019.

Louisiane Lemaire, "Modeling the initiation of cortical spreading depression triggered by the hyperactivity of GABAergic neurons" [poster], 5th International Conference on Mathematical Neuroscience, Copenhagen (Denmark), June 2019.

Martin Krupa, "Neuronal mechanisms for sequential activation of memory items", International Congress on Industrial and Applied Mathematics (ICIAM), Valencia (Spain), July 2019.

Martin Krupa, "Modeling cortical spreading depression induced by the hyperactivity of interneurons", Waves Côte d'Azur Conference, Nice (France), June 2019.

Simona Olmi, "Cross frequency coupling in next generation inhibitory neural mass models", Eugene Wigner Colloquium (Physics Colloquium), TU Berlin, Berlin (Germany), December 2019.

Simona Olmi, "Cross frequency coupling in next generation inhibitory neural mass models, XXXIXth Dynamics Days Europe Conference, Rostock (Germany), September 2019.

Simona Olmi, "Influence of network topology on spreading of epileptic seizure", Waves Côte d'Azur Conference, Nice (France), June 2019.

Simona Olmi, "Influence of network topology on spreading of epileptic seizure", XXIV Convegno Nazionale di Fisica Statistica e dei Sistemi Complessi, Parma (Italy), June 2019.

Simona Olmi, "Enhancing power grid synchronization and stability through time delayed feedback control", EPS conference "Statistical Physics of Complex Systems", Stockholm (Sweden), May 2019.

Simona Olmi, "The Kuramoto model with inertia: from fireflies to power grids", School and Workshop on Patterns of Synchrony: Chimera States and Beyond, Trieste (Italy), May 2019.

Yuri Rodrigues, ": A stochastic model of postsynaptic plasticity based on dendritic spine Ca^{2+} downstream proteins", PhD Seminar, Inria Sophia Antipolis, December 2019.

Yuri Rodrigues, "Towards a stochastic model of excitatory synapse", 1st meeting of the NeuroMod Institute, Fréjus (France), July 2019.

Yuri Rodrigues, "A stochastic model of postsynaptic plasticity based on dendritic spine Ca^{2+} downstream proteins" [poster], 5th International Conference on Mathematical Neuroscience, Copenhagen (Denmark), June 2019.

Halgurd Taher, "Heuristic mean-field model for short term synaptic plasticity" [poster], XXXIXth Dynamics Days Europe Conference, Rostock (Germany), September 2019.

Halgurd Taher, "Enhancing power grid synchronization and stability through time delayed feedback control", XXXIXth Dynamics Days Europe Conference, Rostock (Germany), September 2019.

Halgurd Taher, "Mean-field model for short-term synaptic plasticity" [poster], 1st meeting of the NeuroMod Institute, Fréjus (France), July 2019.

Romain Veltz, "Dynamics of a mean field limit of interacting 2D nonlinear stochastic spiking neurons", 5th International Conference on Mathematical Neuroscience, Copenhagen (Denmark), June 2019.

Romain Veltz, "Analysis of a mean field of 2d spiking neurons, theory and numerics", Bilateral International Meeting UK-France, Royal Society, Chicheley Hall, Milton Keynes (UK), February 2019.

7.1.4. Scientific Expertise

Fabien Campillo was member of the local committee in charge of the scientific selection of visiting scientists (Comité NICE)

Mathieu Desroches was on the Advisory Board of the Complex Systems Academy of the UCA[JEDI] Idex.

Olivier Faugeras was the President of the study group "Intelligence artificielle" of the *Académie des Sciences de Paris*. As such, he led the audition of experts of this research field, namely for 2019, Jean Ponce, Stéphane Mallat and Francis Bach. This study group has also produced a report for the 2019 G7 meeting.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Master / Doctorat: Fabien Campillo, Introduction to Piecewise Deterministic Markov Processes and applications to Neuroscience, 10 hours, Basque Center for Applied Mathematics (BCAM), Bilbao, Spain.

Master : Mathieu Desroches, Modèles Mathématiques et Computationnels en Neuroscience (Lectures, example classes and computer labs), 30 hours, M1 (BIM), Sorbonne Université, Paris, France.

Master / Doctorat: Mathieu Desroches, Slow-fast dynamics in bursting neurons, Tutorial of 3 hours, ICMNS Conference, June 2019.

Master: Romain Veltz, Mathematical Methods for Neurosciences, 20 hours, M2 (MVA), Sorbonne Université, Paris, France.

7.2.2. Supervision

PhD in progress : Louisiane Lemaire, "Multi-scale mathematical modeling of cortical spreading depression", started in October 2018, co-supervised by Mathieu Desroches and Martin Krupa.

PhD in progress: Yuri Rodrigues, "Towards a model of post synaptic excitatory synapse", started in March 2018, co-supervised by Romain Veltz and Hélène Marie (IPMC, Sophia Antipolis).

PhD in progress: Halgurd Taher, "Next generation neural-mass models", started in November 2018, co-supervised by Simona Olmi and Mathieu Desroches.

PhD in progress: Quentin Cormier, "Biological spiking neural networks", started in September 2017, co-supervised by Romain Veltz and Etienne Tanré (Inria TOSCA).

PhD in progress: Pascal Helson, "Study of plasticity laws with stochastic processes", started in September 2016, co-supervised by Romain Veltz and Etienne Tanré (Inria TOSCA).

PhD in progress: Samuel Nyobe, "Inférence dans les modèles de Markov cachés : Application en foresterie", started in October 2017, co-supervised by Fabien Campillo, Serge Moto (University of Yaoundé, Camerun) and Vivien Rossi (CIRAD).

7.2.3. Juries

Fabien Campillo was reviewer and member of the jury of the PhD of Nicolas Thomas (École doctorale des sciences mathématiques de Paris centre (ED 386)), thesis of Sorbonne Université entitled "Stochastic numerical methods for Piecewise Deterministic Markov Processes. Applications in Neuroscience", 20 June 2019.

Mathieu Desroches was examiner and member of the Jury of the HDR of Arnaud Tonnelier (Inria Tripop, Grenoble) entitled "Piecewise linear dynamical systems and excitability", Inria Rhône Alpes, 20 June 2019.

Mathieu Desroches was reviewer and member of the Jury of the PhD of Marina Esteban (University of Seville, Spain) entitled "Dynamics and Bifurcations of Nonlinear Systems with Hysteresis", University of Seville (Spain), 4 March 2019.

Mathieu Desroches was member of the Jury of the PhD of Gabriela Capo Rangel (Basque Center for Applied Mathematics, Bilbao) entitled "Computational predictive modeling of integrated cerebral metabolism, electrophysiology and hemodynamics", University of the Basque Country (Leioa, Spain), 12 February 2019.

MIMESIS Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Reviewer - Reviewing Activities

Members of the teams regularly provide reviews for:

- International conferences and journals on Image Processing and Computer-Assisted Interventions (MICCAI, IPCAI, IJCARS, Medical Image Analysis, Transactions on Medical Imaging)
- International conferences and journals on Computer Graphics and Physics-based modeling (Eurographics, VRIPHYS)
- International conferences on Robotics (IROS, ICRA, EuroHaptics)

10.1.2. Invited Talks

- **Nava Schulmann**: talk on "Bayesian data assimilation" at the Data-driven computational mechanics workshop, New York (USA), February 2019.
- **Hadrien Courtecuisse**: Next Generation Intelligent Surgical Systems workshop, Verona (Italy), November 2019
- **Stéphane Cotin**: Next Generation Intelligent Surgical Systems workshop, Verona (Italy), November 2019
- **Stéphane Cotin**: International Conference on Nonlinear Solid Mechanics, Roma (Italy), June 2019.
- **Stéphane Cotin**: talk on "Digital Twin for medicine" at the Data-driven computational mechanics workshop, Luxembourg, September 2019
- **Stéphane Cotin**: talk on "Patient-specific simulation in medicine" at the Data-driven computational mechanics workshop, February 2019.

10.1.3. Scientific Expertise

Stéphane Cotin provides scientific expertise for Insimo (www.insimo.com).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: Igor Peterlik, Modélisation des systèmes vivants, 17h, M2, University of Strasbourg
- Master: Igor Peterlik, Visualisation des données et simulation, 10h, M1, University of Strasbourg
- Master: Hadrien Courtecuisse, Real time simulation, 30h, M2, University of Strasbourg
- Master: Hadrien Courtecuisse, Visualisation des données et simulation, 10h, M2, University of Strasbourg
- Master: Hadrien Courtecuisse, Visualisation des données et simulation, 10h, M1, University of Strasbourg

10.2.2. Supervision

PhD : Jaime Garcia Guevara, Augmented ultrasound imaging for hepatic surgery, supervised by Stéphane Cotin, Marie-Odile Berger. Defended on Dec 2nd 2019.

PhD in progress: Raffaella Trivisonne, Computer-aided vascular interventions, started 01/09/2015, supervised by Stéphane Cotin and Erwan Kerrien.

PhD in progress: Nicolas Golse, Navigation using the augmented reality during hepatic surgery, started 01/09/2016, supervised by Stéphane Cotin.

PhD in progress: Sergei Nikolaev, Characterization of boundary conditions for biomechanical modeling of liver, started 01/05/2017, supervised by Stéphane Cotin, co-supervised by Igor Peterlik and Hadrien Courtecuisse.

PhD in progress: Jean-Nicolas Brunet, Characterization of boundary conditions for biomechanical modeling of liver, started 01/09/2017, supervised by Stéphane Cotin.

PhD in progress: Andrea Mendizabal, Numerical simulation of soft tissues and machine learning, 01/09/2017, supervised by Stéphane Cotin.

PhD in progress: Paul Baksic, Robotic assistance for percutaneous surgical interventions in deformable structures – Application to radiofrequency ablation, started 01/10/2018, supervised by Hadrien Courtecuisse.

PhD in progress: Ziqiu Zeng started 01/07/2019, SPERRY - Supervised Robotic Surgery - Application to needle insertion, supervised by Hadrien Courtecuisse.

PhD in progress: Guillaume Mestdagh, started 01/09/2019, Real-Time Tumor Tracking as an Optimization Problem, co-supervised by Stéphane Cotin.

10.2.3. Juries

Stephane Cotin was president of the Ph.D. committee for Lorenzo Sala (September 27, 2019). Mathematics laboratory, Strasbourg

Stephane Cotin was in the Ph.D. committee for Jaime Guevara (December 2, 2019). LORIA, Nancy.

10.3. Popularization

10.3.1. Articles and contents

Stephane Cotin wrote a chapter for the book entitled "Virtual Reality and Augmented Reality - Myths and Realities", which is an easy access book on the usages and developments of Virtual Reality and Augmented Reality for various domains. ISBN 978-1-78630-105-5.

10.3.2. Education

We are developing a training system dedicated to flexible endoscopy, used in university diplomas and masters programs for clinicians.

<p style="text-align:center">**MNEMOSYNE Project-Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Chair of Conference Program Committees

X. Hinaut: Co-organizer of the workshop on language learning at IEEE ICDL-EPIROB 2019, Oslo, Norway, August 2019; of the "Day of the NeuroRobotics Working Group", Nov 2019, Bordeaux, France; Session chair at the CogSci conference, Montréal, Canada. Jul 2019.

N.Rougier: co-chair for the track on Neuroscience and Cognitive science during the SciPy conference (Austin, Texas, USA)

10.1.1.2. Member of the Conference Program Committees

X. Hinaut: IROS Workshop on Deep Probabilistic Generative Models for Cognitive Architecture in Robotics, Macau, China. Nov 2019. International Workshop on Cognitive and Neural Systems, Granada, Spain. Oct 2019.

10.1.1.3. Reviewer

X. Hinaut: CogSci'19, ICANN'19, ICDL-Epirob'19, IWANN'19; S. Pagliarini: ICDL-Epirob'19;

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- Frédéric Alexandre: Academic Editor for PLOS ONE; Review Editor for Frontiers in Neuro-robotics;
- Nicolas Rougier: Editor in chief for ReScience, Academic editor for PeerJ, review editor for Frontiers in Neurorobotics.
- Xavier Hinaut: guest editor in the Journal Advanced Robotics of a special issue on "Machine Learning Methods for High-Level Cognitive-Capabilities-in-Robotics"; guest editor for Frontiers Robotics and AI special issue on "Language and Robotics" https://www.frontiersin.org/research-topics/8861/language-and-robotics ; Member of the Editorial Board of Frontiers in Neurorobotics as Review Editor.

10.1.2.2. Reviewer - Reviewing Activities

- F. Alexandre: Elife; EMBC; Frontiers in Neurobotics; Cognitive Computation; PLoS ONE
- Xavier Hinaut: Cognitive Computation, Entropy, Front. in Neurorobotics, Neural Networks, PeerJ, ReScience, IEEE Transactions in Cognitive Developmental Systems (TCDS).
- N.Rougier: Current Biology, PLoS Computational Biology, Journal of Open Science Software, PeerJ

10.1.3. Invited Talks

F. Alexandre:

- Invited speaker at the joint workshop between Inria and LIAMA (The Sino-European Laboratory of Computer Science, Automation and Applied Mathematics), Paris, April 3rd, for the talk: "Setting the basis of a bio-inspired Reinforcement Learning";
- talk to the Interdisciplinary and Translational Neuroscience research network (IT-Neuro) of the University of Lorraine, Nancy, April 25th: "Modeling the frontal cortex for motivated decision making";

- Invited talk "A computational model to study the dynamics of representations of rewards in the orbital and medial frontal cortex", on October 2nd to the 2019 Bordeaux Neurocampus Conference on Reward http://brainconf.u-bordeaux.fr/;

- Invited talk "Trusted AI in medicine" and participation to a round table on december 11th in Merignac at MediSpace congress on transfers of technologies and best practices between space, aeronautical and medical industries https://www.medispace2019.com/en/presentation-2/

X. Hinaut:

- "How to ground sensorimotor sequence of symbols ? From robot learning languages to songbirds", ICDL- Epirob workshop on Language Learning (M. Spranger), Olso, NW. Aug 2019.

- "Random recurrent networks for language and bird song learning", B. Golosio, Physics dept., University of Cagliari, IT.

- "Modélisation de l'encodage neuronal pour l'apprentissage de séquences complexes : applications à l'interaction homme-robot et aux chants des oiseaux". LIRIS, Lyon, June 2019.

- "Modèles Neuronaux Récurrents pour le Traitement de Séquences Complexes", Journée GT-ACAI-Neurorobotique: Neuroscience et multimodalité dans les interactions humain-humain, humain-agent ou humain-robot, ACAI-GT8 common working group day, Telecom ParisTech, Paris, FR.

- "Modélisation de l'encodage neuronal pour l'apprentissage de séquences complexes", "Acoustic Perception" seminar from ETIS lab, University of Cergy-Pontoise, FR. March 2019.

- "Little Mechanisms of AI: from Ants to Language", PhD Retreat of Center for Research and Interdisciplinarity of Paris. Arcachon, June 2019.

- "How to ground sensorimotor sequences of symbols? From robot learning languages to songbirds", ICDL-epirob workshop on Language learning, Oslo, Aug. 2019.

- Symposium organised by regional chair on technological systems for human augmentation, March 28—29, 2019, Bordeaux, France.

- "Echo State Networks", invited lecture at the International MSc "Intelligent Adaptive Systems", KT lab, University of Hamburg, Germany, June 2019.

N.Rougier: Invited talk at the "Robotics, development and neurosciences" conference (Cergy, France)

10.1.4. Leadership within the Scientific Community

X. Hinaut:

- Co-Head of the "NeuroRobotics" CNRS Working Group Organisation of several workshops throughout the year

- IEEE Task Force (TF) member: "Reservoir Computing", "Cognitive and Developmental Systems Technical Committee": "Language and Cognition" TF and "Action and Perception" TF.

- President of the association MindLaBDX: "open citizen lab" in Cognitive Sciences and Artificial Intelligence in Bordeaux.

Nicolas Rougier: Editor in chief for ReScience

10.1.5. Scientific Expertise

F. Alexandre is the french expert for Mathematics and Computer Science of the PHC (Hubert Curien Program) Utique for scientific cooperation between France and Tunisia.

Thierry Vieville has been required as expert to review a large neuroscience lab by the HCERES agency. He has also contributed to a large audience report on « AI in the media and creative industries » [25].

10.1.6. Research Administration

- F. Alexandre is member of the steering committee of Inria Bordeaux Sud-Ouest Project Committee; Corresponding scientist for Bordeaux Sud-Ouest of the Inria COERLE ethical committee; Member of the national Inria committee for international chairs; Member of the steering committee of the regional Cluster on Information Technology and Health; of the regional Cluster on Robotics; Expert of the ITMO 'Neurosciences, Sciences Cognitive, Neurologie, Psychiatrie'

- X. Hinaut: Member of the "Committee for Technological Development" of Inria, Bordeaux, FR

- N. Rougier is vice-head of the Mnemosyne team-project; elected member of the Inria Evaluation Committee; IES referent for Inria Bordeaux Sud-Ouest; Member of the commitee for researcher recruitment; Member of the steering committee for the BioComp CNRS consortium; Editor in chief and co-founder of ReScience.

- Thierry Viéville is involved in the http://classcode.fr project and in charge, for Inria of the MSc SmartEdTech at Univ. Cote d'Azur (UCA).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Many courses are given in french universities and schools of engineers at different levels (LMD) by most team members, in computer science, in applied mathematics, in neuroscience and in cognitive science. Thierry Viéville is teaching computational thinking in the Msc #CreaSmartEdtech ("Digital Expertise", "Educational Informatics" including Artificial Intelligence and Ontologies, "Digital Intedisciplinary Project ") and is co-orgazning this Master of Science. He has been involved in the production of the "Science Numérique et Technologie" (SNT) new high-school course teacher formation, via the creation of a MOOC, with more than 18000 inscriptions, and has collaborated to the qualitative analysis of the course outcomes [18].

In addition, this year, F. Alexandre gave a lecture at the Barcelona Cognition, Brain and Technology Summer School https://bcbt.specs-lab.com/bcbt19/.

10.2.2. Juries

In addition to several juries in France, we can note this year a reviewing and participation to a PhD defense in Germany (F. Alexandre)

10.3. Popularization

10.3.1. Articles and contents

- F. Alexandre published an article about AI and neuroscience in The Conversation https://theconversation.com/de-quelles-facons-lintelligence-artificielle-se-sert-elle-des-neurosciences-124402

- N. Rougier published article: Pourquoi votre chat est nul aux échecs et pourtant plus intelligent qu'une IA, The Conversation (FR); article: Why your cat is lousy at chess yet way smarter than even the most advanced AI, The Conversation (US); Interview: Et le cerveau dans tout ça ? U magazine (Univ. Bordeaux)

10.3.2. Education

F. Alexandre: A lesson about AI (2 hours) and an unplugged activity about learning and memory (1 hour) given to a high-school class of 2nd on november 14th in Dax for the "1 scientist 1 class : Chiche !" MENJ program.

N. Rougier: Science outreach day at the Montendre high-school on unplugged AI (Montendre, France)

Several people in the team (F. Alexandre, T. Firmo-Drumond, N. Rougier, T. Vieville) participated (talks and demonstrations) to the Day "Activities for teaching AI" organized between Inria Bordeaux and LINE laboratory in Sciences of Education in Nice, June 21st;

10.3.3. Interventions

F. Alexandre:

- Intervention at the annual conference of the Bishops of France (Lourdes, April 2nd), with a conference ("What can medicine expect from AI") and the organization of a workshop on Robotics for AI;
- Participation to a round table discussion at the Robot Makers Day Festival, Talence, April 12th: "AI: threats and opportunities for our companies: what training for tomorrow's engineers?"
- conference to the ESME-Sudria School of Engineers, Bordeaux, May 21st: "Is the brain a good model of intelligence ?"
- Conference "Should we be afraid of artificial intelligence?", at the "Université de tous les savoirs" in Saint Jean de Luz on November 13th http://www.utl-luz.fr/index_002.htm
- Conference: "What can we expect from AI ?", in the special day "AI and me" organized on November 15-16 by the city of Pontonx-sur-Adour https://www.pontonx.fr/Pontonx-sur-l-Adour/Agenda-et-actualites/Toutes-les-actus-de-Pontonx/L-intelligence-artificielle

A. Garenne: intervention about "Artificial Neural Networks and Machine Learning" at a club of companies, Pessac, decembre 12

X. Hinaut:

- "Pint of Science" invited talk, Bordeaux, FR, May 2019.
- "Les petits mécanismes de l'IA", invited talk at the Library of "Le Haillan", FR, April 2019.
- Invited jury member of the world scale hackathon "Créathon", Poitiers, FR, May 2019.
- Invited talk at the Science Fest Day, Cap Sciences, Bordeaux, FR, Oct 2019.

N. Rougier:

- Reboot conference "Will robots dominate us ?" (Bordeaux, France)
- Discussion with the general public about science, fiction and AI at Cap-Sciences (Bordeaux, France)

Thierry Viéville is an active member of Femmes et Sciences, has been invited speaker at Un rêve pour les filles et les garçons : LA SCIENCE and is involved in dedicated science outreach actions [15].

Several people in the team (F. Alexandre, T. Firmo-Drumond, N. Rougier) participated to the "Trial of AI" on november 20, in the project "The controversy of Bordeaux Macropole" during the festival Facts, program Arts and Sciences of University of Bordeaux. https://www.youtube.com/watch?v=UI4B4TteRmA and https://twitter.com/bdxmacropole

Intervention by A. Garenne and T. Firmo-Drumond at the inter-university seminar "artificial intelligence and clinical sense", Bordeaux, march 11-12

10.3.4. Creation of media or tools for science outreach

Thanks to fundings from the Bordeaux Museum of Science Cap Sciences (http://www.cap-sciences.net/) and from the Foundation Blaise Pascal (https://www.fondation-blaise-pascal.org/), we have designed a software tool to run small demonstrative scenarios, to help everyone discover the brain functions at the origin of our sensorimotor and vital cognitive behaviors (instinctive and motivated behavior, selection of embodied action, emotional decision-making, seat of self-awareness, etc.). This resource is for a wide audience to whom we can show scenarios, but also co-build multi-media resources to share methods and knowledge (participatory scientific mediation approach) and to discuss these topics. It is also at the disposal of scientific mediators (researchers and beyond) who wish to co-construct such resources, or to present research results involving the animation of anatomy of the nervous system as well as of users or authors of computer code who want to reuse shared technologies to derive other applications, in particular become familiar with the specification languages (here JSON and markdown).

MONC Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- C. Poignard: Organization of the Core-to-Core meeting March 21st-22nd at Bordeaux. This is the annual meeting of the JSPS Consortium « Establishing networks in mathematical medicine », which gathers Osaka University (Suzuki's lab), Vanderbilt University (Quaranta's lab), St Andrews Univ. (Chaplain's lab), and Inria Bordeaux team MONC.

10.1.2. Scientific Events: Selection

10.1.2.1. Reviewer

S. Benzekry served as a reviewer for the IEEE Control Systems Society Conference and for the International Symposium on Mathematical and Computational Oncology (Lake Tahoe, NV, USA).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- S. Benzekry is a member of the Editorial Board of "Mathematical Biosciences and Engineering"
- C. Poignard is a member of the editorial board of DCDS-S.

10.1.3.2. Reviewer - Reviewing Activities

- S. Benzekry served as a reviewer for Nature Communications, Cancer Research, Clinical Pharmacology and Therapeutics, Scientific Reports and ESAIM: Proc.
- A. Collin: Reviewer for Plos One.
- C. Etchegaray: ESAIM: Mathematical Modelling and Numerical Analysis, Royal Society Open Sciences.
- O. Saut: Mathematical Modelling of Natural Phenomena, PLOS One, Journal of Theoretical Biology, EBioMedicine, Nature Communications, Medical Image Analysis.

10.1.4. Invited Talks

- S. Benzekry: May 2019, RITS conference (Recherche en Imagerie et Technologies pour la Sante) of the French Society of Biomedical Engineering (SFGBM), Tours, France.
- S. Benzekry: May 2019, Seminaire phases I en oncologie, Marseille, France. Old concept, new name? l'intelligence artificielle en oncologie.
- S. Benzekry: May 2019, Masterclass Mathematiques appliquees CEPS Mathematiques Des Sciences du Vivant, CIRM, Marseille, France.
- S. Benzekry: May 2019, NCI Mathematical Oncology Meeting, Portland, USA.
- S. Benzekry: May 2019, Biomedicum Helsinki Seminar (Invitation by Sampsa Hautaniemi), Faculty of Medicine, Helsinki, Finland.
- S. Benzekry: June 2019, Seminar in the Novartis pharmacometrics department. Basel, Switwerland. Artificial intelligence and machine learning in oncology: myths and reality.
- S. Benzekry: July 2019, International Society of Pharmacometrics (ISoP) workshop. Paris, France.
- C. Etchegaray: Equadiff conference, Leiden.
- O. Saut: July 2019, Mathematical models in Biology and Medicine, Vienna, Austria.

10.1.5. Scientific Expertise

- S. Benzekry is expert within the scientific board of the national multi-thematic institute (ITMO) Cancer of the French alliance for health sciences (AVIESAN).
- A. Collin, Steering Committee Axe 5, Cancéropole Grand Sud Ouest
- C. Poignard: Member of the INCA committee on pediatric cancer data structuration
- C. Poignard: Member of the GAMNI prize committee.
- O. Saut: expert in the "Single Cell" call at ITMO Cancer / Plan Cancer.
- O. Saut: expert for the French Ministry of Research (for various programs including PHC and EGIDE programs).
- O. Saut: reviewer for SIRIC CURAMUS projects.

10.1.6. Research Administration

- S. Benzekry is a member of the local Inria commission of informatical tools users (CUMI)
- Annabelle Collin, member of "conseil de Laboratoire", Institut Mathématique de Bordeaux.
- Annabelle Collin, "chargée de mission parité", Institut Mathématique de Bordeaux.
- Annabelle Collin, member of "commission ADT", Inria Bordeaux Sud-Ouest.
- Annabelle Collin, "chargée de mission Développement Durable et Responsabilité Sociétale", ENSEIRB-MATMECA.
- Annabelle Collin, elected member of "comité de centre", Inria Bordeaux Sud-Ouest.
- C. Poignard is a member of the Inria Evaluation Committee
- Clair Poignard, member of "conseil scientifique", Institut Mathématique de Bordeaux.
- Olivier Saut: member of the steering committee of ITMO consortium HTE (on tumor heterogeneity) and coordinator of work package Model and Data.
- Olivier Saut: member of the steering committee of Labex TRAIL (Translational Imaging) http://trail.labex.u-bordeaux.fr.
- Olivier Saut: in charge of "Interdisciplinarité" at Institut de Mathématiques du CNRS http://www.cnrs.fr/insmi.
- Olivier Saut: member of the steering committee of the MITI at CNRS http://www.cnrs.fr/mi.
- Olivier Saut: member of the steering committee of the Oncosphere Project https://siric-brio.com/oncosphere/.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master : S. Benzekry, Cours "Modélisation de la croissance tumorale", 3h, niveau M2, Université de Tours, France.

Master : S. Benzekry, Cours "Mathematical tools for pharmacometrics", 10h, niveau M2, Aix-Marseille Université, France.

Master : S. Benzekry, TP "Introduction to Monolix", 2 x 3h, EUR "Modeling Life Sciences" (Université de Bordeaux) and DESU "Pharmacokinetics modeling" (Aix-Marseille Université), France.

Master: A. Collin, Pratical C++ programming, 96h, niveau M1, INP Bordeaux, France.

Master: A. Collin, Mesh theory, 36h, niveau M2, INP Bordeaux, France.

Master: A. Collin, Machine Learning, niveau M2, INP Bordeaux, France.

PHD: A. Collin, Modeling Life Science Module, Digital Public Health, Graduate Program.

Licence : C. Poignard, Undergraduate teaching in Numerical and Applied Mathematics, 80h, L3-M1, INP Bordeaux, ENSAM, France.

Master: O. Saut, Mathematical modeling in Oncology, 2h, niveau M2, Univ. Bordeaux, France.

10.2.2. Supervision

PhD: C. Nicolò, *Mathematical modeling of systemic aspects of cancer and cancer therapy*, 2016 - 2019, supervision S. Benzekry and O. Saut. Defended October 14th, 2019.

PhD in progress: C. Vaghi, Improving intra-tumor drug distribution of anti-cancer nanoparticles by data-informed mathematical modeling, Nov 2017 - Nov 2020, supervision S. Benzekry and C. Poignard.

PhD in progress: Sergio Corridore, 2016-..., supervision A. Collin and C. Poignard

PhD in progress: Pedro Jaramillo-Aguayo, 2019-..., supervision A. Collin and C. Poignard

PhD: C. Perier, *Analyse quantitative des données de routine clinique pour le pronostic précoce en oncologie*, 2016-2019, supervision B. Denis de Senneville and O. Saut. Defended November 14th, 2019.

PhD in progress: A. Crombé, 2017-..., supervision O. Saut

10.2.3. Juries

- S. Benzekry: Reviewer of the PhD thesis of E. Kozlowska (University of Helsinki, Finland)
- S. Benzekry: Reviewer of the PhD thesis of A. Alvarez-Arenas Alcami (Universidad de Castilla La Mancha, Ciudad Real, Spain)
- S. Benzekry: Reviewer of the PhD thesis of A-S Giaccobi (Université Picardie Jules Verne)
- S. Benzekry: Reviewer of the PhD thesis of J Goya-Outi (Paris Saclay University)
- A. Collin, Phd defense committee, Antoine Gérard, Inria Bordeaux Sud-Ouest, Modèles numériques personnalisés de la fibrillation auriculaire, 10 juillet 2019
- A. Collin, Phd defense committee, Thibaut Hirschler, INSA Lyon, IsoGeometric Modeling for the Optimal Design of Aerostructures, 13 nov. 2019
- A. Collin, Jury member, agrégation de Mathématiques
- O. Saut: Reviewer of the HdR thesis of A. Decoene, Univ. Paris Sud, France.
- O. Saut: Reviewer of the PhD thesis of A. Perrillat-Mercerot, Univ. Poitiers, France.
- O. Saut: PhD defense committee, A. Hocquelet, Univ. Bordeaux, France
- O. Saut: PhD defense committee, G. Birindelli, Univ. Bordeaux, France

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

10.3.2. Interventions

- A. Collin, intervention "midi-rencontre sur les femmes dans les sciences", association TousEn-Sciences
- A. Collin, intervention "place de la femme dans les métiers scientifiques", Robot makers' days
- C. Etchegaray: Fête de la science.
- O. Saut: Journée Scientifique Institut Bergonié.

10.3.3. Internal action

- O. Saut: Café des Sciences.

<p style="text-align:center; color:red; font-weight:bold">MORPHEME Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Member of the Conference Program Committees

Laure Blanc-Féraud was member of the Conference Program Committees of NCMIP (New Computational methods for Inverse Problems), OSA Applied Optics Congress Mathematics in imaging, Workshop SPARS (Signal processing with Adaptive Sparse Structured Representation).

Luca Calatroni was the co-organiser of the workshop Regularisation methods for inverse problems and machine learning (Jussieu, Paris), 19 November 2019.

9.1.1.2. Reviewer

Laure Blanc-Féraud was a reviewer for the conferences IEEE ISBI, ICIP and ICASSP.

Xavier Descombes was a reviewer for for the conferences ISBI, ICIP, ICASSP.

Grégoire Malandain was a reviewer for the conference ISBI.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

Laure Blanc-Féraud was Associated Editor for the journals SIAM Imaging Sciences. She was also responsible of the editorial field "Image" of the SCIENCES new editorial project of ISTE/WILEY Group which concerns the publication of collections of multi-authored titles in the fields of pure and applied sciences, health and humanities.

Luca Calatroni is a guest-editor of the Journal of Mathematical Neuroscience for the special issue on Colour representation and Cortical-inspired image processing

Xavier Descombes is Associated Editor for the journal Digital Signal Processing.

9.1.2.2. Reviewer - Reviewing Activities

Florence Besse was a reviewer for the journals Nature, Development, RNA, LifeStarAlliance, Front.mol.biol.

Luca Calatroni was a reviewer for the Journal of Mathematical Imaging and Vision, Applied Mathematics and Computation and SIAM Journal of Imaging Sciences.

Xavier Descombes was a reviewer for the Journal of the American Statistical Association.

9.1.3. Invited Talks

Laure Blanc-Féraud was invited to give a talk at to give a talk during the Sparsity4PSL International Summer School.

Luca Calatroni was invited to give a talk at the GdR Vision 2019 (Marseille), 10 October 2019, at the Statistical and Computational Learning seminars (Università di Genova, IIT, LCSL), 29 November 2019, and a BaD seminar (University of Bologna), December 3 2019.

Xavier Descombes was invited to give a talk at the Institut Henro Poincaré (Paris) for the workshop "Statistical Modeling for Shapes and Imaging", march 11-15.

9.1.4. Leadership within the Scientific Community

Laure Blanc-Féraud is member of IEEE BISP (Biomedical Imaging Signal Processing) Technical Committee.

Xavier Descombes is member of IEEE BISP (Biomedical Imaging Signal Processing) Technical Committee.

Grégoire Malandain is member of the IEEE/EMB Technical Committee on Biomedical Imaging and Image Processing (BIIP). He is an member of the Scientific Committee of the MIA department of INRA.

9.1.5. Scientific Expertise

Laure Blanc-Féraud is a member of the ANR scientific evaluation committee ASTRID.

Luca Calatroni was in the committee for the evaluation of PhD allocation for the Region Normandie.

Xavier Descombes is a member of the ANR scientific evaluation committee CE45.

Xavier Descombes is an expert of the French Research Ministry for evaluating companies CIR and JEI.

9.1.6. Research Administration

Laure Blanc-Féraud is a member of the "Commission Administrative Paritaire" for "chargé de recherche" of CNRS. She is a member of the Conseil Scientifique et Pédagogique de l'EUR DS4H, and of the Academic Council of the 3IA Côte d'Azur project, in charge of the biological axis.

Eric Debreuve is member of the Comité Permanent des Ressources Humaines (CPRH), UNS, section 61.

Xavier Descombes is member of the "comité des projets" of Inria CRISAM, of the Comité Permanent des Ressources Humaines (CPRH), UNS, section 61, of the ANR evaluation committee CE45, of the Labex Signalife Scientific Council.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Arne Bechensteen, Outils pour la physique, 42h, L1, Polytech Nice Sophia, France

Licence : Arne Bechensteen, Programmation impérative PeiP1, 13h30, L1, Polytech Nice Sophia, France

Master : Arne Bechensteen, Traitement Numérique des Images, 8h, M2, Polytech Nice Sophia, France

Master : Arne Bechensteen, Compression, analyse et visualisation de contenus multimédia, 2h, M2, Polytech Nice Sophia, France

Licence: Florence Besse, RNA localization, 3h, L3, ENS Ulm, France

Master: Florence Besse, Neuron cell biology and circuits, 6h, M1/2, Université Côte d'Azur, France

Master: Florence Besse, RNA localization and neuron morphology, 4h, M1/2, Université Côte d'Azur, France

Master: Laure Blanc-Féraud, Traitement avancé des images, master STIMM, 8h Eq. TD, Niveau M2, Université Côte d'Azur, France.

Master: Eric Debreuve, scientific image processing, 9h EqTD, M1 + M2, Université Côte d'Azur, France

Master: Xavier Descombes, Traitement d'images, Analyse de données, Techniques avancées de traitement d'images, 10h Eq. TD, Niveau M2, ISAE, France.

Master: Xavier Descombes, Traitement d'images, master, 9h Eq. TD, Niveau M2, Université Côte d'Azur, France.

Master: Xavier Descombes, Bio-imagerie, master IRIV, 6h Eq. TD, Niveau M2, Université de Strasbourg, France

Master: Xavier Descombes, Analyse d'images, master GBM, 9h Eq. TD, Niveau M2, Université Côte d'Azur, France.

Master: Xavier Descombes, Traitement d'images scientifiques, master SVS, 15h Eq. TD Niveau M2, Université Côte d'Azur.

Licence: Henrique Goulart, Automatique, 30h, niveau L3, École Polytechnique Universitaire de Nice Sophia-Antipolis, France

Licence: Henrique Goulart, Traitement Numérique du Signal, 48h, niveau L3, École Polytechnique Universitaire de Nice Sophia-Antipolis, France

Master: Sarah Laroui, Analyse d'images, master GBM, 10h Eq. TD, Niveau M2, Université Côte d'Azur, France.

Master/Ingénieur: Sarah Laroui, Data Science, M2/Ingénieur 5, Niveau 5eme année ingénieur, 4h Eq. TD, Polytech Nice Sophia, France.

IUT 1ere année: Sarah Laroui, Acquisition et codage de l'information, niveau 1ère Année DUT RT, 13h30 Eq. TD, Institut Universitaire de Technologie (IUT) Sophia, France.

DUT: Somia Rahmoun, Acquisition et Codage de l'Information, 8h Eq.TD, Bac+1, IUT Réseaux et Télécommunications de Nice Côte d'Azur, France

9.2.2. Supervision

PhD: Emmanuelle Poulain, Recalage déformable entre angioscanner cardiaque 3D statique et angiographie coronaire dynamique 2D+t, université Côte d'Azur, october 10th, 2019, Grégoire Malandain.

PhD in progress: Arne Bechensteen, TIRF-MA and super-resolution by sparse estimation method, october 2nd, 2017, Laure Blanc-Féraud, Gilles Aubert, Sébastien Schaub.

PhD in progress: Cédric Dubois, Classification du plancton conjointe en espèce et traits morphologiques et fonctionnels avec contrainte de relations espèces-traits et de hiérarchie des espèces en taxonomie génétique, october 1st, 2019, Eric Debreuve, Jean-Olivier Irisson (LOV, Villefranche-sur-mer).

PhD in progress: Anca-Ioana Grapa, Characterization of the organization of the Extracellular Matrix (ECM) by Image Processing, 19 September 2016, Laure Blanc-Féraud, Xavier Descombes, E. van Obberghen, (iBV).

PhD in progress: Sarah Laroui, Classification and modelling of botrytis cinerea fungi growth from microscope images: toward the establishment of links between phenotypes and antifongic molecules, 1st August 2018, Eric Debreuve, Xavier Descombes

PhD in progress: Manuel Petit, Quantifying and modeling trajectories of living form development, 1st November 2019, Grégoire Malandain, Christophe Godin (EPI Mosaic, Inria, Lyon).

PhD in progress: Clara Sanchez, Lipides nutritionnels et neuroinflammation : dévelopement d'outil de morphométrie cellulaire, 1st october 2019, Carole Rovère (IPMC), Eric Debreuve.

PhD in progress: Vasiliki Stergiopoulou, Learning and optimization for 3D+T super-resolution in fluorescent microscopy, January 1st 2020, Laure Blanc-Féraud, Luca Calatroni, Sébastien Schaub.

PhD in progress: Rudan Xiao, Analysis and classification of cellular and vascular markers in histological images: application to kidney cancer, 1st october 2019, Xavier Descombes, Eric Debreuve.

9.2.3. Post-doctorates

Post-doc: Vanna Lisa Coli, Image processing for ancient pottery, co-supervised by Laure Blanc-Féraud and Juliette Leblond EPI Factas.

Post-doc: Henrique Goulart, Superresolution microscopy by blinking molecules, supervised by Laure Blanc-Féraud, Eric Debreuve and Sébastien Schaub.

9.2.4. Internships

Amina Achaibou, Détection, caractérisation et clustering de cellules gliales dans le cadre d'une étude des lipides nutritionnels, Eric Debreuve

Ghosh Avrajit, Deep Learning for ExtraCellular Matrix classification, Laure Blanc-Féraud, Xavier Descombes

Deborah Cottais, Tumor cell tracking for automatic detection of cell death time, and classification of its type, Eric Debreuve

Paul-Emmanuel Ponsenard, Image binarization using persistence diagram, Xavier Descombes

Pat Vatiwutipong, Master of mathematics, "Properties of the d-Radon transform and application to imaging issues in archeology , co-supervised by Juliette Leblond EPI FACTAS and Laure Blanc-Féraud.

Zhankeng Zhang, Graph matching and classification using simulated annealing, Xavier Descombes

9.2.5. Juries

Florence Besse particpated to 4 PhD defense committees (UCA (2) and University of Montpellier (2)) and 2 HDR defense committees (UCA and Paris Descartes)

Laure Blanc-Féraud was part of 3 PhD defense committees (Megane Boudineau IRIT Toulouse, Aleix Boquet Pasteur Institute Paris as reviewer, Jabrane Karkouri CReatis Lyon) and one HDR committee (Mathieu Aucejo CNAM Paris). She was part of 2 "comités de suivi de thèse".

Xavier Descombes participated as a reviewer to the PhD thesis committee of Lamees Nasser (Paris Sorbonne University) and Kim Jonkhoon (Paul Sabatier University, Toulouse).

Grégoire Malandain participated as reviewer to the PhD thesis committee of Carlos Tor Diez (COMUE Bretagne Loire) and as supervisor to the PhD thesis committee of Emmanuelle Poulain (université Côte d'Azur)

9.3. Popularization

9.3.1. Education

Luca Calatroni participates to the Italian project "Penne amiche della scienza" to promote scientific research in Primary Schools.

9.3.2. Interventions

Laure Blanc-Féraud gave a conference in high school CIV during "la fête de la science".

National events: Village des Sciences et de l'Innovation d'Antibes Juan les Pins 2019.

The Morpheme team took part in "La fête de la Science" during the "Village de la Science" in Juan-Les-Pins. Somia Rahnmoun, Cedric Dubois and Arne Bechensteen were present at the Inria stand for this event.

MOSAIC Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. Member of the Organizing Committees

- Romain Azaïs was a member of the organizing committee of the Journées de Statistique 2019 in Nancy.
- Romain Azaïs organized with Hélène Leman (NUMED) the second InriaBio@Lyon day, which gathered 6 teams of the Inria center interested in biological questions.

8.1.2. Scientific Events: Selection

8.1.2.1. Reviewer

- Romain Azaïs: NeurIPS 2019.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

- Christophe Godin:
  - Asssociate editor in Plant biophysics and modeling of the journal Frontiers in Plant Sciences.
  - Member of the Editorial Advisory Board of the journal in silico Plants.
  - Member of the board of the functional-structural plant modeling (FSPM) series of conferences (next to come at fall 2020).

8.1.3.2. Reviewer - Reviewing Activities

- Olivier Ali: Frontiers in plant sciences.
- Romain Azaïs: Stochastic Processes and their Applications, Journal of Statistical Theory and Practice, Bernoulli.
- Christophe Godin: Frontiers in plant sciences, Annals of Botany, Bulletin of mathematical Biology (co-coordination of a special issue).
- Bruno Leggio: Physical Review Letters, Physical Review A, Physical Review B, Physical Review E, Frontiers in Plant Science, Entropy, Symmetry, Energies.

8.1.4. Invited Talks

- Oliver Ali was invited to give a seminar at the UPSC Lab in Umea (Sweden) in December 2019.
- Romain Azaïs was invited to give a presentation at the UTC in Compiègne, at the Laboratoire Paul Painlevé in Lille, and at the Laboratoire de Biométrie et Biologie Evolutive in Lyon.
- Christophe Godin was invited to give presentations at the research unit IGFL (Lyon), University of Calgary (Canada), University of Heidelberg (Germany) and ENS de Lyon.

8.1.5. Scientific Expertise

- Christophe Godin
  - is a member of the International Scientific Advisory Committee of the Plant Phenotyping and Imaging Research Centre (P2IRC), Saskatchewan, Canada.

– is a member of the Scientific Board of the Plant Biology and Breeding Department of INRA (BAP).

8.1.6. Research Administration

- Christophe Godin:
    - is a member of the Project Committee at Grenoble Rhone-Alpes Research Center.
    - is a member of the Steering Committee of the RDP Lab., Lyon.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- Olivier Ali:
    - Jury for the evaluation of a practical course on computational modeling for developmental biology (Licence 3 Biology ENS Lyon).
    - Course (3h) and practical course (3h) about mechanical modeling of plant morphogenesis (Master plant biology for sustainable production, Umea university and Swedish University of Agricultural Science, Sweden).
- Romain Azaïs:
    - Colles de mathématiques, CPGE PCSI, Lycée Jean Perrin, Lyon
    - Cours de Master 2 Apprentissage à partir de données arborescentes, Master Maths en Action, Université Lyon 1
- Christophe Godin:
    - Cours Les plantes dans tous leurs états pour non-specialistes, ENS de Lyon: *Phyllotaxis.* (2h).
    - Cours Master Sysbio, U. de Lyon: *A journey in Phyllotaxis.* (2h).
    - Master Stem Cells and Development ENS de Lyon (3h): *Introduction to Phyllotaxis.*
- Florian Ingels:
    - Séances de TP Probabilités-Statistiques, Licence Mathématiques et Economie, Université Lyon 1
    - Séances de TP Statistiques pour l'informatique, Licence Informatique, Université Lyon 1

8.2.2. Supervision

PhD (2016 – 2019): Florine Greciet (IECL, Université de Lorraine and Safran). Régression polynomiale par morceaux pour la propagation de fissures. Supervisors: Anne Gégout-Petit (Inria team BIGS, IECL, Université de Lorraine) and Romain Azaïs.

PhD in progress (2019 - 2022): Florian Ingels (MOSAIC, Université de Lyon). Supervisors: Romain Azaïs, Christophe Godin.

Hadrien Oliveri PhD (2015-2019) Montpellier University, co-supervision Christophe Godin, Jan Traas,

Katia Mirande PhD (2018-2021) Strasbourg University, co-supervision Franck Hetroy, Christophe Godin

Anne Schneider PhD (2016-2020) Angers University, co-supervision Jesssica Bertheloot, Christophe Godin

Manuel Petit PhD (2019-2022), ENS de Lyon, co-supervision Christophe Godin, Grégoire Malandain.

Master 2 (6 months): Florian Ingels. Statistical learning from trees: toward the definition of an optimal kernel for tree data. Supervisor: Romain Azaïs.

Master 2 (6 months): Florent Papini. Tracking cells in confocal images of meristems. Supervisor: Christophe Godin.

8.2.3. *Juries*

Christophe Godin was a member (as a supervisor) of the PhD defense of Hadrien Oliveri - University of Montpellier (May 2019).

Christophe Godin was the President of the PhD defense of Valeria Hernandez at ENS de Lyon (December 2019).

8.3. Popularization

- Olivier Ali:
    - Participated to the Declic initiative: Discussions about of scientific research to high school students (3h, Lycée Jean Perrin, Lyon).
    - Invited conference about mechanical modeling of plant morphogenesis for the Université Ouverte in Lyon.
- Christophe Godin participated to the Declic initiative: Introductory talk and discussions about scientific research to high school students (3h, Lycée Frédéric Fays, Villeurbanne).

8.3.1. *Interventions*

- Christophe Godin gave:
    - a lecture at Inria Grenoble in the context of a training program for Informatique et Sciences du Numérique dedicated to Math and Physics highschool teachers. see video (1h30)
    - a visio-seminar to highschool students of the French Lycée in Laos (1h30)

<h2 style="text-align:center; color:red;">NEUROSYS Project-Team</h2>

9. Dissemination

9.1. Promoting Scientific Activities

Laurent Bougrain is a member of the steering committee of the research network in neuroscience of the university of Lorraine.

Laure Buhry is an elected member of the "Pôle Scientifique AM2I" council of university of Lorraine.

9.1.1. Scientific Events: Organisation

Laurent Bougrain is a member of the organization committee of the scientific days of the research network in neuroscience of the university of Lorraine, April 25th 2019 (topic: emotions, motivation and addictions) & December 5th 2019.

9.1.2. Leadership within the Scientific Community

Laurent Bougrain is a member of the Board of Directors of the scientific society CORTICO for the promotion of Brain-Computer Interfaces in France.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Engineering school: L. Bougrain, Brain-Computer Interfaces, 4.5h, 3rd year, Supelec, France

Engineering school: L. Bougrain, Artificial Intelligence, 61h, 3rd year, Telecom Nancy, France

Engineering school: A. Aussel, Python, Ecole des Mines, Nancy, France

Master: L. Buhry, Algorithms for Articifial Inteligence, 31h, Master of cognitive science, M1, University of Lorraine, France

Master: L. Buhry, Fondamental Artificial Intelligence and data mining, 18h, Master of cognitive science, M1, University of Lorraine, France

Master: L. Buhry, Formalisms for representation and reasoning, 25h, Master of cognitive science, M1, University of Lorraine, France

Master: L. Buhry, Memory and Machine Learning, 38h, Master of cognitive science, M1, University of Lorraine, France

Master: L. Buhry, Computationnal Neurosciences, 25h, Master of cognitive science/SCMN, M2, University of Lorraine, France

Master: L. Bougrain, Learning and reasoning in the uncertain, 32h, Master of computer science, M2, University of Lorraine, France

Master: S. Rimbert, Brain-Computer Interface, 17h, Master of cognitive sciences, M2, University of Lorraine, France

Master: A. Aussel, Computational Neuroscience, Master of cognitive sciences, M2, University of Lorraine, France

Licence: S. Rimbert, Introduction to Neurosciences, 15h, Licence of cognitive sciences, L1 University of Lorraine, France

Licence: L. Buhry, Programmation Python, 37h, level L1 MIASHS, University of Lorraine, France

Licence: L. Buhry, Probability and statistics, 30h, L1 MIASHS, University of Lorraine, France

Licence: L. Buhry, Artificial Intelligence and problem solvinges, 25h, L3 MIASHS, University of Lorraine, France

Licence: L. Bougrain, programming on mobile devices, 17h, Licence of computer science, L3, University of Lorraine, France

Licence: N. Azevedo Carvalho, Mathematics, 64h, L1 SPI, University of Lorraine, France

9.2.2. Supervision

PhD: Amélie Aussel, Extraction of electrophysiological markers and mathematical modelling of the epileptic hippocampus, October 14 2019, Laure Buhry and Radu Ranta (CRAN).

PhD in progress: Sébastien Rimbert, Study of the dynamic of cerebral motor patterns during general anesthesia, January 1st 2016, Axel Hutt and Laurent Bougrain.

PhD in progress: Oleksii Avilov, methods for on-line detection of neural rythm changes in the motor system: application to brain-computer interfaces, June 1st 2018, Patrick Hénaff, Laurent Bougrain and Anton Popov (Kiev Polytechnic institute).

PhD in progress: Nathalie Azevedo Carvalho, a biologically plausible computer model of pathological neuronal oscillations observed in Parkinson's disease, November 1st 2018, Dominique Martinez and Laure Buhry.

9.2.3. Juries

Amélie Aussel, Extraction of electrophysiological markers and mathematical modelling of the epileptic hippocampus, October 14 2016, Univ Lorraine, (Laure Buhry and Radu Ranta, supervisors)

Committee of selection for an assistant professor position MCF69/19 University of Toulouse (2019), Laurent Bougrain

<p style="text-align:center;color:red;">**NUMED Project-Team**</p>

6. Dissemination

6.1. Promoting Scientific Activities

6.1.1. Scientific Events: Organisation

6.1.1.1. General Chair, Scientific Chair

- E. Grenier: member of the Scientific Board of the CLARA (Regional Cancer organization)
- H. Leman: Inria Bio (october 2019)
- H. Leman: "mating preferencies" symposium in the international conference MMEE (june 2019)
- P. Vigneaux: Scientific co-head of the national CNRS research group GdR EGRIN (with Emmanuel Audusse).

6.2. Teaching - Supervision - Juries

6.2.1. Teaching

- E. Grenier: L3 (integration theory), M1 (PDEs) and "agregation" (modeling).
- Paul Vigneaux: "agregation" (modeling), "computational sciences, an introduction to modelling" (for L3 - M2 students from physics, computer science and biology)
- Paul Vigneaux: Member of the Board of MILYON, the Laboratory of Excellence (Labex) in Mathematics of Lyon (Since September 2011). This Labex aims at federating international research, higher education and society activities. In charge of evaluation and grant attribution for foreign students for M1, M2 and PhD in Lyon, since 2011.

6.3. Popularization

Emmanuel Grenier: "Mathematics and vaccines" (Université de Chambéry, for first year students).

6.3.1. Interventions

- H. Leman: Mentoring of two high school students
- D. Coulette: Scientific speed dating at "Musée des Confluences" (Lyon) for the "Fête de la Science" and $80th$ birthday of CNRS.

OPIS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- F. Malliaros. Organizer of the Summer School in Artificial Intelligence, CentraleSupélec, France, 2019.

10.1.1.2. Member of the Organizing Committees

- H. Talbot. Member of the organizing committee for ICCV 2023 in Paris.
- F. Malliaros. Member of the organizing committee of the International Workshop of Deep Learning for Graphs and Structured Data Embedding (DL4G-SDE), The Web Conference (WWW), San Francisco, California, 2019.
- F. Malliaros. Member of the organizing committee for the special session on Machine Learning with Graphs: Algorithms and Applications, 28th International Conference on Artificial Neural Networks (ICANN), Munich, Germany, 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- E. Chouzenoux. Elected member of the EURASIP Signal and Data Analytics for Machine Learning technical committee (since 2018), and of the IEEE Signal Processing Theory and Methods technical committee (since 2017).

10.1.2.2. Member of the Conference Program Committees

- E. Chouzenoux. Organization of a special session at the 45th International Conference on Acoustics, Speech, and Signal Processing, ICASSP 2020.
- M. Castella. Organization of a special session at the 27th European Signal Processing Conference, EUSIPCO 2019.
- F. Malliaros. Member of the program committee at International Conference on Artificial Neural Networks, ICANN 2019.
- J.C. Pesquet. Member of the program committee at GRETSI 2019.
- H. Talbot. Member of the board and program committee at the International Symposium in Mathematical Morphology, which took place in Saarbrücken, Germany, July 2019.
- H. Talbot. Member of the program committee at the conference Discrete Geometry for Computer Imagery, which took place in Noisy-le-Grand, France, March 2019.
- M. Vakalopoulou. Member of the program committee at the Joint Urban Remote Sensing Event (JURSE), 2019.

10.1.2.3. Reviewer

The members of the team reviewed numerous papers for several international conferences, such as for the annual conferences on Computer Vision and Pattern Recognition (CVPR), Medical Image Computing and Computer Assisted Intervention (MICCAI), Neural Information Processing Systems (NIPS) and International Conference on Learning Representations (ICLR), IEEE International Conference and Acoustics Speech and Signal Processing (ICASSP), IEEE International Conference on Image Processing (ICIP), IEEE Statistical Signal Processing workshop (SSP), European Signal Processing Conference (EUSIPCO), AAAI Conference on Artificial Intelligence (AAAI), The Web Conference (WWW), Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL), International Conference on Web and Social Media (ICWSM), International Conference on Machine Learning (ICML), Conference on Neural Information Processing Systems (NeurIPS), International Conference on Complex Networks and Their Applications (Complex Networks), International Workshop on Graph-Based Natural Language Processing (TextGraphs).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Emilie Chouzenoux: Associate Editor at IEEE Transactions on Signal Processing
- Jean-Christophe Pesquet: Associate Editor of the SIAM Journal on Imaging Sciences
- Hugues Talbot: Editor in Chief, Mathematical Morphology, Theory and Applications (De Gruyter).
- Hugues Talbot: Senior area editor for IEEE Signal Processing Letters.

10.1.3.2. Reviewer - Reviewing Activities

- E. Chouzenoux: IEEE Trans. on Image Processing, IEEE Trans. Signal Processing, SIAM Journal on Imaging Science, Journal of Optimization Theory and Applications, Journal of Global Optimization, Journal of Mathematical Imaging and Vision, Inverse Problems.
- J.-C. Pesquet: IEEE Trans. on Signal Processing, IEEE Trans. on Image Processing, IEEE Trans. on Information Theory (IEEE-TI), Signal Processing, SIAM Journal on Optimization, SIAM Journal on Imaging Sciences, Journal of Mathematical Imaging and Vision, Journal of Optimization Theory and Applications, Mathematical Programming.
- F. Malliaros: IEEE Transactions on Knowledge and Data Engineering (TKDE), Applied Network Science, International Journal on Artificial Intelligence Tools (IJAIT).
- H. Talbot: IEEE Pattern Analysis and Machine Intelligence, IEEE Transaction on Image Processing, Computer Vision and Image Understanding, J. on Mathematical Imaging and Vision, Signal Processing Letters, Transactions on Signal Processing. Reviewer for the conferences ACCV, BMVC, CVPR, ICIP, ICML, ISBI, and NeurIPS (ex-NIPS),.
- M. Vakalopoulou: International Journal of Computer Assisted Radiology and Surgery (IJCARS), IEEE Trans. on Geoscience and Remote Sensing (TGRS), Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS), ISPRS Journal of Photogrammetry and Remote Sensing, Computer Methods and Programs in Biomedicine (CMPB), Pattern Recognition Letters, Computer Vision and Image Understanding (CVIU), SPIE Optical Engineering (OE), Remote Sensing MDPI.

10.1.4. Invited Talks

- E. Chouzenoux:
  Polish academy of science, Warsaw, Poland, November 2019
  University of Edinburgh, UK, October 2019
  AIP 2019, Grenoble, France, July 2019
  SPARS 2019, Toulouse, France, 4 July 2019
  Inria Rennes PANAMA, April 2019
  Imagine ENPC, Champs-sur-Marne, April 2019
  Univ. Paris-Dauphine, Paris, March 2019
  Imaging in Paris, IHP, Paris, February 2019
- J.C. Pesquet:
  BASP Frontiers Workshop, Villars-sur-Ollon, Suisse, February 2019
  Modern Maximal Monotone Operator Theory workshop, Vienna, February 2019
  Workshop on Operator Splitting Methods in Data Analysis, New York, US, March 2019
  Marseille Université, Juin 2019
  International Conference on Optimisation, Berlin, August 2019
  EUSIPCO, A Coruña, Spain, September 2019
  French-German-Swiss Conference on Optimization, Nice, September 2019
  Wavelet and Applications workshop, Brussels, November 2019

- H. Talbot:
CentraleSupélec: March 2019, November 2019
Institut Henri Poincaré, Paris, February 2019

- M. Vakalopoulou:
ARTORG Center for Biomedical Engineering Research, University of Bern, March 2019
European Society of Thoracic Imaging 2019, May 2019
Department of Computer Science, Stony Brook University, June 2019
Electrical & Computer Engineering, University of Houston, June 2019
France is AI, October 2019
Intelligence Artificielle et Santé, Faculté de Médicine Paris-Sud, November 2019
Annual Symposium of Belgian Association for Neuro-Oncology, December 2019

10.1.5. Leadership within the Scientific Community

J.-C. Pesquet is senior member of the Institut Universitaire de France and a Fellow of IEEE.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master : E. Chouzenoux. Foundations of Distributed and Large Scale Computing, 26h, M.Sc. in Data Sciences and Business Analytics, 3rd year CentraleSupélec, MVA ENS Cachan, Master Optimization Paris Sud and ESSEC Business School, FR

- Master: E. Chouzenoux. Advanced Machine Learning, 18h, 3rd year CentraleSupélec, FR

- Master: F. Malliaros. Machine Learning, 27h, M.Sc. in Data Sciences and Business Analytics, CentraleSupélec and ESSEC Business School and M.Sc. in Artificial Intelligence, CentraleSupélec, FR.

- Master: F. Malliaros. Introduction to Machine Learning, 33h, 2nd year course at CentraleSupélec, FR.

- Master: F. Malliaros. Mathematical Modeling of Propagation Phenomena – Propagation on Graphs, 15h, 1st year course at CentraleSupélec, FR.

- Master: Oyallon, Edouard. Deep Learning, 24h, 3rd year CentraleSupélec, FR

- Master: Oyallon, Edouard. Reinforcement Learning, 24h, 3rd year CentraleSupélec, FR

- Master : J.C. Pesquet. Advanced course on Optimization, 33h, M1, CentraleSupélec, FR

- Master: J.C. Pesquet. Introduction to Optimization, 6h, MVA ENS Cachan, FR

- Master: Talbot, Hugues. Discrete Optimisation, 2nd year course, CentraleSupelec, 30h, EN

- Master: Talbot, Hugues. Big Data, Techniques and Platforms, M.Sc in Data Science and Business Analytics, CentraleSupelec and ESSEC Business School, 30h, EN

- Master: Talbot, Hugues. Optimisation for AI, M.Sc in AI, CentraleSupelec and ESSEC Business School, 30h, EN

- Master: M. Vakalopoulou. Introduction to Visual Computing, 25h, 3rd year CentraleSupélec, FR

- Master: M. Vakalopoulou. Deep Learning, 25h, 3rd year CentraleSupélec, FR

- Master: M. Vakalopoulou. Introduction to Machine Learning, 33h, 2nd year CentraleSupélec, FR

10.2.2. Lecturing activities

- F. Malliaros. Summer School Artificial Intelligence, July 1-12, 2019, CentraleSupélec.

- J.C. Pesquet. Erwin Schrödinger Institute for Mathematics and Physics in Vienna, 4-6 March 2019, Austria.

- M. Vakalopoulou. Summer School on Artificial Intelligence, July 1-12n 2019, CentraleSupélec.

- E. Chouzenoux. Summer School Sparsity for Physics, Signal and Learning, June 24-27, 2019, Inria Paris.

10.2.3. Supervision

- PhD (defended) : Huu Dien Khue Le, Algorithme des directions alternées non convexe pour graphes: inférence et apprentissage, 2016-2019, supervised by N. Paragios.

- PhD (defended) : Riza Alp Guler, Apprentissage de Correspondances Image-Surface, 2016-2019, supervised by I. Kokkinos and N. Paragios.

- PhD (defended) : Marie-Caroline Corbineau, Fast online optimization algorithms for machine learning and medical imaging, 2016-2019, supervised by E. Chouzenoux and J.-C. Pesquet.

- PhD (defended) : Loubna El Gueddari, Parallel proximal algorithms for compressed sensing MRI reconstruction - Applications to ultra-high magnetic field imaging, 2016-2019, supervised by J.-C. Pesquet and Ph. Ciuciu (Inria PARIETAL).

- PhD (in progress) : Abdulkadir Çelikkanat, Representation learning methods on graphs, 2017-2020, supervised by F. Malliaros and N. Paragios.

- PhD (in progress): Yunshi Huang, Majorization-Minimization approaches for large scale problems in image processing, 2018-2021, supervised by E. Chouzenoux and V. Elvira (Univ. Edinburgh).

- PhD (in progress) : Samy Ammari, Imagerie médicale computationnelle en neuro oncologie, 2019-2022, supervised by C. Balleyguier (Institut Gustave Roussy) and E. Chouzenoux.

- PhD (in progress) : Georgios Panagopoulos, Influence maximization in social networks, 2018-2021, supervised by F. Malliaros and M. Vazirgiannis (École Polytechnique).

- PhD (in progress): Surabhi Jagtap, Graph-based learning from multi-omics data, 2019-2022, supervised by F. Malliaros, J.-C. Pesquet, and L. Duval (IFP Energies Nouvelles).

- PhD (in progress): Kavya Gupta, Neural network solutions for safety of complex systems, 2019-2022, supervised by F. Malliaros, J.-C. Pesquet and F. Kaakai (Thales Group).

- PhD (in progress): Maria Papadomanolaki, Change Detection from Multitemporal High Resolution Data with Deep Learning, 2017-2021, supervised by M. Vakalopoulou and with K. Karantzalos.

- PhD (in progress): Mihir Sahasrabudhe, Unsupervised ans Weakly Supervised Deep Learning Methods for Computer Vision and Medical Imaging, 2016-2020, supervised by N. Paragios.

- PhD (in progress): Théo Estienne, Improving anticancer therapies efficacy through Machine Learning on Medical Imaging & Genomic Data, 2017-2020, supervised by M. Vakalopoulou and N. Paragios.

- PhD (in progress): Enzo Battistella, Development of novel imaging approaches for tumour phenotype assessment by noninvasive imaging 2017-2020, supervised by M. Vakalopoulou and N. Paragios.

- PhD (in progress): Roger Sun, Deep learning and computer vision approaches on medical imaging and genomic data to improve the prediction of anticancer therapies' efficacy, 2017-2020, supervised by M. Vakalopoulou and N. Paragios.

- PhD (in progress): Ana Neacsu, Méthodes d'apprentissage profond inspirées d'algorithmes de traitement du signal, 2019-2022, supervised by J.-C. Pesquet and C. Burileanu (Politehnica Bucarest).

- PhD (in progress): Sagar Verma, Modélisation, contrôle et supervision de moteurs électriques par réseaux de neurones profonds, 2019-2022, supervised by M. Castella and J.-C. Pesquet.

- PhD (in progress): Maïssa Sghaier, clinical Task-Based Reconstruction in tomosynthesis, 2017-2020, supervised by J.-C. Pesquet and S. Muller (GE Healthcare).

- PhD (in progress): Marion Savanier, Reconstruction 3D interventionnelle, 2019-2022, supervised by E. Chouzenoux and C. Riddell (GE Healthcare).

- PhD (in progress): Arthur Marmin, Rational models optimized exactly for chemical processes improvement, 2017-2020, supervised by M. Castella (Telecom Paristech) and J.-C. Pesquet.

- PhD (in progress): Sylvain Lempereur. Analyse quantitative de la morphologie de poissons aux stades larvaire et juvénile. 2017-2020. Supervised by Hugues Talbot and Jean-Stéphane Joly (CNRS).

- PhD (in progress): Daniel Antunes: Contraintes géométriques et approches variationnelles pour l'analyse d'image. 2016-2019. Supervised by Hugues Talbot and Jacques-Olivier Lachaud (U. Savoie-Mont Blanc)

- PhD (in progress): Marie-Charlotte Poilpre: Méthode de comparaison faciale morphologique, adaptée aux expertise judiciaires, basée sur la modélisation 3D. 2017-2020. Supervised by Hugues Talbot and Vincent Nozick (U. Paris-Est)

- PhD (in progress): Thank Xuan Nguyen. Détection et étude morphologique des sources extragalactiques par analyse variationnelle. 2018-2021. Supervised by Hugues Talbot and Laurent Najman (ESIEE)

- PhD (in progress): Marvin Lerousseau. Apprentissage statistique en imagerie médicale et en génomique pour prédire l'efficacité des thérapies anti-tumorales. 2018-2021. Supervised by Nikos Paragios (Therapanacea), Eric Deutch (IGR) and Hugues Talbot.

- PhD (in progress): Mario Viti. Low-dose assessment of coronal vessel health on CT. 2019-2022. Supervised by Hugues Talbot.

10.2.4. Juries

The faculty members of the team participated to numerous PhD Thesis Committees, HDR Committees and served as Grant Reviewers. Moreover, they serve regularly as a jury Member to Final Engineering Internship and the Research Innovation Project for students of CentraleSupélec, FR.

<p style="text-align:center">**PARIETAL Project-Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Bertrand Thirion co-organized the "Imagerie médicale et intelligence artificielle " colloque at Collège de France on April, 23rd, 2019.

Thomas Moreau co-organized the Palaisien seminar: a monthly scientific seminar in statistics and statistical learning bringing together researchers in this field working on the Saclay Plateau. The seminar started in November and brings together about fifty researchers (http://palaisien.herokuapp.com).

10.1.1.2. Member of the Organizing Committees

Demian Wassermann: MICCAI 2019, ISMRM 2019

Gaël Varoquaux: PyParis 2019

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Philippe Ciuciu: Chairman of scientific oral sessions in ISBI 2019 (Venice, Italy), program commitee of EUSIPCO 2019.
- Gaël Varoquaux: program committee of NIPS, ICML, ICLR, senior program committee IJCAI.
- Alexandre Gramfort: program committee of NIPS, ICML, ICLR.
- Demian Wassermann: ISMRM 2019
- Thomas Moreau: JDSE 2019

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Philippe Ciuciu: Senior Area Editor of IEEE OJSP
- Alexandre Gramfort: Editor, NeuroImage, Journal of Machine Learning Research (JMLR), Frontiers in Brain Imaging Methods
- Bertrand Thirion: Editor, Frontiers in Brain Imaging Methods
- Gael Varoquaux: Editor, elife

10.1.3.2. Reviewer - Reviewing Activities

- Philippe Ciuciu is reviewer for Nature Communication, Biological Pysichiatry, Plos Computational Biology, Neuroimage, Scientific Reports, Journal of Neuroscience, IEEE TSP/TIP/TMI/TCI/SPL, Frontiers in Neuroscience, MRM, SIAM Imaging Science
- Gaël Varoquaux: Nature Methods, JMLR, PLOS Bio, NeuroImage, NeuroImage Clinical, IEEE TMI, Annals of Applied Statistics, Biological Psychiatry, MedIA, Science
- Alexandre Gramfort: JMLR, PLOS Computational Biology, NeuroImage, IEEE TBME, IEEE TMI, IEEE TSP, MedIA, NIPS, ICML, ICLR, ICASSP, Scientific Reports, Frontiers in Brain Imaging Methods, Journal of Neuroscience Methods
- Bertrand Thirion: Nature communications, Neuroimage, Medical Image Analysis, IEEE TMI, PNAS, PLOS Comp Bio, Brain Structure and Function, NIPS, ICML, IPMI, AISTATS

- Denis Engemann: Brain, PLOS Biology, PLOS Computational Biology, Psychological Medicine, Scientific Reports, Neuroimage, Neuroimage Clinical, Human Brain Mapping, Journal of Machine Learning Research, Brain Topography, Brain Connectivity, Journal of Alzheimer's Disease, Neuroscience of Consciousness, PLOS ONE, Frontiers in Neuroscience, Journal of Computational Neuroscience, Psychiatry and Clinical Neurosciences, Sensors
- Demian Wassermann: NeuroImage, MRM, JMRI, Brain Structure and Function, Cortex, MedIA.
- Thomas Moreau: ICML, NeurIPS, EUSIPCO, JDSE, AISTAT, JMLR, TSP, LSP, JMIV
- Olivier Grisel: JMLR

10.1.4. Invited Talks

- Philippe Ciuciu, Ecole Centrale Nantes, Nov. 2019
- Philippe Ciuciu, I3S/CNRS (Sophia-Antipolis), Oct. 2019
- Philippe Ciuciu, Wavelets & Sparsity XVIII, San Diego, Aug. 2019
- Philippe Ciuciu, Collège de France, Apr. 2019
- Denis Engemann, Max Planck Institute AES, Frankfurt, Germany, Jan. 2019
- Denis Engemann, University of Birmingham, Birmingham, UK, Apr. 2019
- Denis Engemann, University of Glasgow, Glasgow, UK, Jun. 2019
- Denis Engemann, Max Planck Institute CBS, Leipzig, Germany, Nov. 2019
- Alexandre Gramfort at IHP, Paris, France, April. 2019
- Alexandre Gramfort at Univ Genoa, Italy, Sept. 2019
- Alexandre Gramfort at Univ Jyvaskyla, Finland, May. 2019
- Alexandre Gramfort at Institut Pasteur, Paris, France, June 2019
- Alexandre Gramfort at National Institute of Health, Washington, USA, Oct. 2019
- Bertrand Thirion at Donders Institute, Netherlands Feb. 2019
- Bertrand Thirion at MRC CBU, Cambridge, UK, Nov. 2019
- Bertrand Thirion at INT, Marseille, Nov. 2019
- Bertrand Thirion at GFAIH, Paris, Oct. 2019
- Bertrand Thirion at Université Paris-Sud, faculté de médecine, Nov. 2019
- Bertrand Thirion at Alan turing Institute, London, June 2019
- Gael Varoquaux at MNI (Montréal), Nov. 2019
- Gael Varoquaux at SparkAISummit, Amsterdam, Oct. 2019
- Gael Varoquaux at PyData Amsterdam, Oct. 2019
- Gael Varoquaux at Mila (Montréal), Sept. 2019
- Gael Varoquaux at Etalab (Paris), June 2019
- Gael Varoquaux at MGH (Harvard), June 2019
- Gael Varoquaux at Yale, June 2019
- Demian Wassermann at NYU, February 2019
- Demian Wassermann at ERC, June 2019
- Demian Wassermann at BWH (Harvard), June 2019
- Demian Wassermann at Stanford, October 2019
- Thomas Moreau **ISMRM, Educational Session, Montreal, Canada, 2019:** "Best Practices & Pitfalls in Applying Machine Learning to Magnetic Resonance Imaging".
- Thomas Moreau **Télécom ParisTech, SMILE seminar, Paris, France, 2019:** "Multivariate Convolutional Sparse Coding for Electromagnetic Brain Signals".

- Thomas Moreau **ENS Paris-Saclay, Centre de Mathématiques et de leurs Applications, MLMDA seminar, Cachan, France, 2019:** "Multivariate Convolutional Sparse Coding for Electromagnetic Brain Signals".

- Thomas Moreau **Telecom ParisTech, Laboratoire Traitement et Communication de l'Information, seminar, Paris, France, 2019:** "Using the Dictionary Structure for efficient Convolutional Dictionary Learning".

- Thomas Moreau **Centre pour l'Énergie Atomique Saclay, Cosmostat, annual seminar day, Saclay, France, 2019:** "Learning Recurring Patterns in Large Signals with Convolutional Dictionary Learning".

10.1.5. Leadership within the Scientific Community

- Demian Wassermann: Organising committee of the BrainHack community — Paris Chapter
- Demian Wassermann: ISMRM and MICCAI action organization towards reducing gender and minority biases.

10.1.6. Scientific Expertise

- Philippe Ciuciu has been reviewer for NWO, The Netherlands (Veni/Vidi/Vici call)
- Philippe Ciuciu has been hired as H2020 expert evaluator for the H2020-WIDESPREAD-2020-5 Twinning RCA programme since Dec 2019.
- Denis Engemann has been reviewer for the Swiss National Science Foundation in 2019
- Alexandre Gramfort has been member of an NSF panel in the USA in January 2019.
- Demian Wassermann FET-OPEN ERCA Action, and DataIA
- Gaël Varoquaux was expert for DataIA

10.1.7. Research Administration

- In Nov 2018, Philippe Ciuciu Elected Vice-Chair of the SAT Biomedical Image & Signal Analytics (EURASIP technical committee) for 2019-2020.
- In Dec 2019, Philippe Ciuciu has been renewed as the IEEE Signal Processing Society Representative for the 2020 IEEE ISBI conference.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Alexandre Gramfort, Optimization for Data Science, 20h, Msc 2 Data Science Master Ecole Polytechnique, France

Master: Alexandre Gramfort, DataCamp, 20h, Msc 2 Data Science Master Ecole Polytechnique, France

Master: Alexandre Gramfort, Source Imaging with EEG and MEG, 7h, Msc 2 in Biomedical Imaging at Télécom Paristech

Doctoral School: Alexandre Gramfort, Practical machine learning, 6h, The mathematics of imaging: the CIRM pre-school, Marseille, France

Master: Bertrand Thirion, Functional neuroimaging and BCI, 12h, Master MVA, ENS Paris-Saclay, France

Master: Bertrand Thirion, Kshitih Chawla, Thomas Bazeille: tutorial on Nilearn, 8h, INT, Marseille.

Master: Philippe Ciuciu, fMRI course: From acquisition to data Analysis, 6h, Msc 2 in Biomedical Imaging, Université Paris-Sud

Bachelor: Demian Wassermann, CSE201 class, 15h, C++ programming, Ecole Polytechnique

Master: Demian Wassermann, 7h Biomedical Engineering, Msc 2 Biomedical Engineering

Extension: Demian Wassermann, Data Science, 20h, Ecole Polytechnique

Master: Gaël Varoquaux, Machine learning in Python, 3h, ENSAE

Master: Gaël Varoquaux, Functional brain connectivity, 7h, Msc 2 in Biomedical Imaging at Télécom Paristech

Doctoral school: Gaël Varoquaux, representation learning with limited sample, 4h30, Deep Learning Summer School, Warsaw

Doctoral school: Gaël Varoquaux, machine learning for neuroimaging, 3h, Unique days, Montréal

Doctoral school: Gaël Varoquaux, machine learning with scikit-learn, 4h, IBPRIA, Madrid

Master: Thomas Moreau, **Formation continue Telecom ParisTech (7h)** TP pour Machine learning and Python.

Master: Thomas Moreau, **Master Spécialisé courses, Telecom ParisTech (20h)** Assistant TP pour le cours de machine learning avancé.

Master: Thomas Moreau, **Exectutive Master Statistique et Big Data, Université Paris-Dauphine (9h)** Cours Python pour le machine learning.

Master: Thomas Moreau, **Master Data Science, Université Paris-Saclay (25h)** Cours machine learning associé à un challenge.

Master: Olivier Grisel, **Master Data Science, Université Paris-Saclay (40h)** Cours de Deep Learning.

10.2.2. Supervision

Demian Wassermann has defended his habilitation thesis in May 2019.

The following PhD defenses have taken place

Guillermo Gallardo, "Inferring and comparing structural parcellations of the human brain using diffusion MRI", defended Jan 2019, co-directed by Demian Wassermann

Patricio Cerda, "encoding high-cardinality string categories", defended Nov 2019, directed by Gaël Varoquaux

Jérome Dockes, "large-scale predictive neuroimaging meta-analyses" defended Nov 2019, directed by Gaël Varoquaux & Fabian Suchanek (Telecom)

Pierre Ablin, defended Nov 2019, directed by Alexandre Gramfort

Mathurin Massias defended Dec 2019, directed by Alexandre Gramfort

Loubna El Guedari, defended Dec 2019, directed by Philippe Ciuciu

Ongoing PhD theses

Kamalakar Daddi, "predictive population analysis for mental health", defense planned Oct 2020, directed by Gaël Varoquaux, Denis Engemmann & Bertrand Thirion

Alexis Cvetkov Iliev, "embeddings of database entries", defense planned Oct 2022, directed by Gaël Varoquaux & Alexandre Allauzen (ESPCI)

Hicham Janati, 01/10/2017, coadvised by Alexandre Gramfort and Marco Cuturi

Quentin Bertrand, 01/10/2018, coadvised by Alexandre Gramfort and Joseph Salmon

Hubert Banville, 01/10/2018, coadvised by Alexandre Gramfort and Denis Engemann

David Sabbagh, 01/10/2018, coadvised by Alexandre Gramfort and Denis Engemann

Jérôme-Alexis Chevalier, 01/10/2017, coadvised by Bertrand Thirion and Joseph Salmon

Hugo Richard, 01/10/2018, coadvised by Bertrand Thirion and Olivier Grisel

Thomas Bazeille, 01/10/2018, advised by Bertrand Thirion

Tuan Binh Nguyen, 01/10/2018, coadvised by Bertrand thirion and Sylvain Arlot

Valentin Iovene, 01/10/2018, advised by Demian Wassermann

Antonia Machlouzarides Shalit, 01/10/2018, coadvised by Demian Wassermann and Bertrand Thirion

Hamza Cherkaoui, 01/10/2017, co-advised by Philippe Ciuciu and Thomas Moreau

Zaccharie Ramzi, 01/02/2019, co-advised by Philippe Ciuciu and Jean-Luc Starck

Anaïs Artiges, 01/10/2019, co-advised by Philippe Ciuciu and Cyril Poupon

Guillaume Daval-Frérot, 01/11/2019, advised by Philippe Ciuciu

Maeliss Jallais, 01/10/2018, advised by Demian Wassermann

Lucas Martin, 01/10/2019, advised by Bertrand Thirion and Julie Josse.

Chengran Fan, 01/10/2019, co-advised by Demian Wassermann and Jing-Rebecca Li

Gaston Zanitti, 01/11/2019, advised by Demian Wassermann

10.2.3. Juries

Bertrand Thirion has been involved in the following committees:

- PhD - Florian Tilquin / University of Strasbourg
- PhD - Han Bossier / University of Ghent
- Habilitation - Laurent Oudre / Université Paris XIII

Philippe Ciuciu has been involved in the following committees:

- PhD - Marica Pesce (reviewer) / Heriot-Watta University, Edinburgh
- PhD - Christian El Hajj (reviewer) / Ecole Centrale Nantes.

Denis Engemann has been involved in the following committees:

- PhD - Laura Sophie Imperatori, IMT School for Advanced Studies Lucca, Lucca, Italy
- MD - Cyril Touchard, Universite´ Paris Diderot (Paris 7)

Gael Varoquaux has been involved in the following committees:

- PhD - Beyrem KHALFAOUI / Mines ParisTech

Alexandre Gramfort has been involved in the following committees:

- PhD - Benjamin Donnot / LRI, Université Paris-Sud
- PhD - Belhal Karimi / CMAP, Polytechnique
- PhD -Pedro Rodriges (reviewer) / GIPSA Lab, Grenoble
- PhD - Kostiantyn Maksymenko (reviewer) / Inria, Sophia
- MD - Cyril Touchard, Universite´ Paris Diderot (Paris 7)

Demian Wassermann has been involved in the following committees:

- PhD-midterm - Katrin Rojkova / Université Paris-Sorbonne
- Habilitation - Daniel Margulies / Université Paris-Sorbonne

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Philippe Ciuciu has been member of the Inria Saclay scientific commission since 2016
- Denis Engemann has been managing the Twitter accounts of Parietal and the MNE software since 2017
- Alexandre Gramfort is in charge of the Paris-Saclay Center for Data Science
- Alexandre is a Member of the technical development committee of Inria Saclay since Dec 2018
- Bertrand Thirion, head of the Dataia Convergence Institute since January 1st, 2019

- Gaël Varoquaux was Member of the technical development committee of Inria Saclay until Dec 2018
- Gaël Varoquaux is member of the doctoral monitoring committee of Inria Saclay
- Gaël Varoquaux is member of the steering committee of the Paris-Saclay Center for Data Science
- Thomas Moreau: Co-organisation of the weekly Parietal team seminar bringing together the 45 members of the team for short presentations and a longer scientific presentation.
- Gaël Varoquaux is in charge of the scikit-learn consortium

10.3.2. Internal action

- Guillaume Lemaître, Marie Telenczuk, et Lucie Liu have taught a 1-day training on data-science with Python in Nov 2019.

10.3.3. Creation of media or tools for science outreach

- Guillaume Lemaître, Gael Varoquaux, Olivier Grisel started developing new teaching material for MOOC of Scikit-learn to be hosted in 2020 on the FUN platform in collaboration with Loic Esteve and the team members of the Inria Learning Lab).

PLEIADE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Journal

9.1.1.1. Member of the Editorial Boards

Alain Franc is member of the editorial board of BMC Evolutionary Biology.

Pascal Durrens is a member of the editorial board of the journal ISRN Computational Biology.

9.1.2. Scientific Expertise

David Sherman is a member of the Scientific Advisory Board of Enlightware GmbH, Zürich.

9.1.3. Research Administration

Alain Franc has been appointed "chargé de mission calcul" at INRA by INRA Delegate for Digital Transition. As such, his mission is to propose animations and solutions for the development of scientific computing at INRA, whatever the Research Department.

David Sherman is president of the Commission for Technology Development (CDT) of the Inria Bordeaux Sud-Ouest research center. The CDT has two roles. First, it evaluates funding requests for Technology Development and Technology Transfer projects, which typically involve hiring technical staff. Second, the CDT is responsible for validating and overseeing contract engineers hired by Inria project-teams.

David Sherman represents Inria in the steering committee of the Region Nouvelle Aquitaine's regional research network "Biodiversity and Ecosystemic Services" (BIOSENA).

9.2. Popularization

9.2.1. Education

David Sherman contributed to the *Journée APEIA (Activités Pour l'Enseignement de l'IA)*
David Sherman help train teachers in programming mobile robots, in preparation for R2T2 events (http://r2t2.org) coordinated by the Mobsya association and EPFL (Switzerland).

9.2.2. Interventions

In collaboration with a local PME, David Sherman helped design an interactive exhibit on tree classification for a museum in the Region Nouvelle Aquitaine, based on a specialization of **Qui se ressemble s'assemble**.

David Sherman presented the **Qui se ressemble s'assemble** activity to 100 middle school students during the Circuit Scientifique in 2019 (Figure 6), and to 40 undergraduate students from the ENS Lyon.

9.2.3. Creation of media or tools for science outreach

David Sherman refined his design for the electronics of the **Qui se ressemble s'assemble** activity, to explain the methods and uses of pattern classification of protein families. The activity uses 20 3D-printed point clouds and 4 oracles, containing a microcontroller, an RFID reader with a custom-designed inductive coil as input, and an LED ring as output. Participants propose groups of 3D shapes that they believe belong to the same class, and the oracle evaluate the group.

*Figure 6. **Qui se ressemble s'assemble** during the Circuit Scientifique in 2019: (left) classification oracle (right) comparing similar shapes (Photo copyright Gautier DUFAU)*

REO Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

I. Vignon-Clementel: Co-chair of the international conference VPH2020

9.1.1.2. Member of the Organizing Committees

Irene Vignon-Clementel: session to foster collaboration between scientists and medical doctors at the Inria/CentraleSupelec/Ap-Hp meeting, March 28th, Palaiseau, France

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

- I. Vignon-Clementel
  - Programme committee member, Computational and Mathematical Biomedical Engineering Conference
  - Conference steering committee, International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Irene Vignon-Clementel: Associate Editor of the International Journal for Numerical Methods in Biomedical Engineering

9.1.3.2. Reviewer - Reviewing Activities

Irene Vignon-Clementel for several journals such as Annals Biomed Eng, BMMB, Med. engineering &Physics.

9.1.4. Conferences and seminars

- Nicolas Golse
  - talk, 15th French congress of hepato-biliary surgery (ACHBT-SFCD), Hotel Newport Bay, Paris, 27-29 Novembre 2019
  - As part of his clinical research, N. Golse presented 7 conference talks and 5 posters
- Nour Bou Saleh
  - poster: 15th French congress of hepato-biliary surgery (ACHBT-SFCD), Hotel Newport Bay, Paris, 27-29 Novembre 2019
- Florian Joly (supported by Reo)
  - talk, ESB2019, European Society of Biomechanics Conference, July 7-10 2019, Vienna, Austria
  - talk, SB2019, Congress of the French society of biomechanics October 28-30 2019, Poitiers, France
- Irene Vignon-Clementel
  - Invited talk, Day on AI and health, School of medicine, U. Paris-Saclay, Nov 25th, Kremlin-Bicetre, France

- – Invited talk, National conference of Biomechanics, Oct 28-30, Poitiers, France
- – Round table on Healthcare 4.0, IMT, Oct 15th, St Etienne, France
- – Seminar, U. of Tokyo, June 13th, Tokyo, Japan
- – Keynote speaker, CMBE conference, June 10th-12th, Tohoku University, Sendai City, Japan
- – Keynote speaker, FIMH, June 6-8th, Bordeaux, France
- – Invited talk, International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, May 9th-11th, Philadelphia, USA

9.1.5. Leadership within the Scientific Community

Irene Vignon-Clementel: VPHi board meeting, Oct 4th, Paris, France

9.1.6. Scientific Expertise

Irene Vignon-Clementel: Reviewer for several institutions: Helmholtz Institute (Germany), Israeli Science Foundation, Medical research council (UK), Heart research (UK)

9.1.7. Research Administration

- I. Vignon-Clementel
    - – Working group to foster innovation for the Inserm strategic plan
    - – Technology grant committee (Commission de développement technologique), Inria Paris center
    - – Committee member for PhD students at Inria - Commission consultative des doctorants
    - – Mediator between PhD students and their supervisors for Inria Paris

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence:
Irene Vignon-Clementel

- Numerical Methods for Ordinary Differential Equations, 24h ETD, L3, UPMC (2nd semester 2018-2019)
- Invited lecture as part of the undergraduate continuum mechanics class at AgroParisTech (engineering school), France

Master:

- Irene Vignon-Clementel
    - – Fall school on Ventilation and Music, Cargèse, France (2h30 EDT)
    - – MEC 550 - Biofluid Mechanics and Mass Transport, Ecole Polytechnique (engineering school), France (1h30 EDT)
    - – Doctoral school cours Innovations thérapeutiques: du fondamental à l'appliqué, bioengineering module at ENS Cachan, France (1h30 EDT)
    - – Master 2 Sciences Chirurgicales de l'Université Paris Sud, France (1h30 EDT)
- Nicolas Golse
    - – Master 1 Sciences, Techniques et Santé, Faculté Médecine Kremlin Bicêtre (4.5h EDT)

University diploma (DU)
Nicolas Golse:

- DU of hepatobiliary and pancreatic surgery, 6 sessions (9h EDT)

9.2.2. Supervision

PhD in progress : Nicolas Golse, Apports de la modélisation anatomique et hémodynamique du foie dans l'anticipation, la réalisation et l'enseignement de la chirurgie hépatique, since 10/2016, co-directed by Eric Vibert, Irene Vignon-Clementel, Stephane Cotin

Defended PhD: Chen-Yu Chiang, Transport in biological systems. Monolithic method for fluid-structure interaction, Sorbonne U., 11 January 2019, co-directed by Marc Thiriet, Olivier Pironneau and Toni Sheu (National Taiwan U)

9.2.3. Juries

Irene Vignon-Clementel

- Referee for the PhD defense of Miguel Veira, KCL, London, UK, June 18th
- Jury for research projects (undergraduates), CentraleSupelec, June 4th & Nov 4th & 6th
- Hiring committee for engineer position, U. of Bordeaux, France, May 5th
- Jury member (invited), PhD defense of F. Joly, CHUM, Canada, April 15th
- Referee for the PhD defense of Mathias Braun, U. of Bordeaux, France, April 4th
- President of the jury for the HDR of Paul VanLiedekerke, Sorbonne U., France, March 26th

9.3. Popularization

9.3.1. Interventions

- N Golse (MD)
  - conference at Ecole des Mines, 14th October 2019, "Healthcare simulation"
- Irene Vignon-Clementel
  - High school forum on scientific career, 7th December, Lycee Corneille, La Celle St Cloud
  - Junior high school intervention 'women in engineering', 22nd February, Ville d'Avray
  - High school forum on scientific career, 19th January, Lycee Corneille, La Celle St Cloud
  - High school intervention, 15th January, Blanche de Castille, Le Chesnay

9.3.2. Internal action

Interviews of Irene Vignon-Clementel by journalist for Inria, 13th March and 25th Nov (see Inria website articles)

SERENA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

Michel Kern was co-organizer of the SITRAM19 workshop (Advances in the SImulation of reactive flow and TRAnsport in porous Media), December 2–3, Pau, France.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

Guillaume Enchéry and Martin Vohralík have organized a 1-day workshop Journée contrat cadre IFP Energies Nouvelles/Inria.

10.1.2.2. Member of the Conference Program Committees

Alexandre Ern is a member of the Scientific Committee of the European Finite Element Fair (EFEF) and of the European Numerical Mathematics and Advanced Applications Conference (ENUMATH).

Géraldine Pichot is a member of the Scientific Commitee of FRAME2020 - FRActured MEdia: Numerical methods for fluid flow and mechanics, September 21-24, 2020.

Michel Kern and Martin Vohralík were members of the Scientific Committee of the SimRace 2019 conference.

Michel Kern was a member of the Program Comittee of JCAD2019, Journées Calcul et Données .

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Alexandre Ern is a member of the editorial boards of SIAM Journal on Scientific Computing, ESAIM Mathematical Modelling and Numerical Analysis, IMA Journal of Numerical Analysis, and Computational Methods in Applied Mathematics.

Martin Vohralík is a member of the editorial boards of SIAM Journal on Numerical Analysis, Acta Polytechnica, and Applications of Mathematics.

10.1.3.2. Reviewer - Reviewing Activities

Alexandre Ern and Martin Vohralík served as reviewers for dozens of papers in different journals.

Michel Kern serrved as reviewer for BIT, Numerical Mathematics, Computational Geosciences, SIAM Journal on Scientific Computing, Applicable Analysis, and Journal of Mathematical Study.

Géraldine Pichot served as reviewer for Computational Geosciences.

10.1.4. Invited Talks

Alexandre Ern was invited as one of the two keynote lecturers at the Workshop on Computational Modeling and Numerical Analysis, Petropolis, Brésil, Feb 2019.

Michel Kern was invited as one of the keynote speakers at the HPC TerrSys fall school, Bonn, Germany, Sep. 2019.

Martin Vohralík was an invited speaker at GAMM section on Numerical methods of differential equations, Vienna, Austria, February 2019, Modern Finite Element Technologies 2019, Bad Honnef, Germany, July 2019, and Reliable Methods of Mathematical Modeling, Vienna, Austria, Sep 2019.

10.1.5. Leadership within the Scientific Community

Alexandre Ern is the coordinator of the Master Mathématiques et applications, Ecole nationale des ponts et chaussées.

Michel Kern is a member of the SIAM "Committee on Committees and Appointments".

Michel Kern is a member of the Scientific Board of ORAP (Organisation Associative du Parallélisme).

Michel Kern is a member of the Scientific Advisory Board of GDR CNRS Groupe Calcul.

Michel Kern is a member of the steering committee of Géosciences franciliennes.

Martin Vohralík is a member of the steering committee of Summer schools CEA–EDF–Inria.

Martin Vohralík is in charge of the topic "Numerical schemes, mesh generation algorithms, and error control" in the ANDRA, BRGM, CEA, EDF, IFP Energies Nouvelles, and Total working group on *High-Performance Numerical Simulation in the Geosciences* (identification of common challenges and collaboration opportunities).

10.1.6. Research Administration

François Clément is a member of the *Comité local d'hygiène, de sécurité et des conditions de travail* of the Inria Research Center of Paris.

Michel Kern is a member of the *Comité de Centre* of the Inria Research Center of Paris.

Martin Vohralík is a member of the Inria Paris *Committee on scientific positions* (evaluation of applications for Ph.D. theses (CORDI-S), post-docs, and délégations).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : Alexandre Ern, Numerical analysis, 77h, L3/M1, Ecole Polytechnique, France.

Licence : Alexandre Ern, Optimal control, 10h, L3, Ecole nationale des ponts et chaussées, France.

Master : Alexandre Ern, Discontinuous Galerkin methods, 20h, M2, Sorbonne University, France.

Master: Michel Kern, Models and numerical methods for subsurface flow, 30h, M2, Université Paris Saclay, France

Master: Michel Kern, Inverse Problems, 24h, M1, Mines-ParisTech, France

Master: Michel Kern, Introduction to Partial Differential Equations, 30h, & Advanced numerical analysis, 30h, M1, Institut Galilée, Université Paris-Nord, France.

10.2.2. Supervision

PhD defended on June 3, 2019: Jad Dabaghi, A posteriori error estimates and adaptive stopping criteria for formulations with complementarity constraints, Martin Vohralík and Vincent Martin.

PhD defended on March 22, 2019: Patrik Daniel, Adaptive hp-finite elements with guaranteed error contraction and inexact multilevel solvers, Martin Vohralík and Alexandre Ern.

PhD in progress: Joëlle Ferzly, A posteriori error estimates and adaptivity for complementarity problems, started 15 October 2019, Martin Vohralík.

PhD in progress: Frédéric Marazzato, Discrete element methods for fracture and fragmentation, started 01 October 2016, Alexandre Ern.

PhD in progress: Riccardo Milani, Compatible Discrete Operator schemes for Navier–Stokes equations, started 01 October 2017, Alexandre Ern.

PhD in progress: Ani Miraci, Robust a posteriori error control and adaptivity with inexact solvers, started 01 October 2017, Martin Vohralík and Alexandre Ern.

PhD in progress: Idrissa Niakh, Reduced models for variational inequalities in computational mechanics, started 01 November 2019, Alexandre Ern and Virginie Ehrlacher (ENPC).

PhD in progress: Stefano Piccardo, High-fidelity simulation of droplets in complex shear flows, started 01 October 2019, Alexandre Ern and Antonio Huerta (UPC).

PhD defended on October 22, 2019: Nicolas Pignet, Hybrid high-order methods for nonlinear solid mechanics, Alexandre Ern.

10.2.3. Juries

Alexandre Ern, Examiner and Chairman, PhD V. Mamet, INP Grenoble, Jan 2019.

Alexandre Ern, Referee, PhD A. Rupp, Erlangen FA University, Mar 2019.

Alexandre Ern, Examiner, HDR C. Millet, University Paris-Sud, Mar 2019.

Michel Kern, Examiner, PhD Daniel Salas, Université de Strasbourg, Sep. 2019.

Michel Kern, Examiner, PhD Kevish Napal, Université Paris Saclay, Dec. 2019.

Géraldine Pichot, Referee, PhD Fabio Vicini, Politecnico di Torino, April 2019.

Martin Vohralík, Examiner and Chairman, PhD Hoang Phuong Thai, ENS Paris-Saclay, Jun 2019.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

+ Géraldine Pichot is a member of the editorial committee of Interstices since November 2019.

<p style="text-align:center; color:red;">SERPICO Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organization

10.1.1.1. General Chair, Scientific Chair

- Charles Kervrann was co-General Chair (with R. Ober, Texas A&M), and head of the organizing committee of the "Quantitative BioImaging" (QBI'2019) conference (350 attendees, Rennes, January 2019).
- Jean Salamero was the scientific responsible and co-organizer of the first joint "Workshop on BioImaging" between Paris Sciences Lettres (PSL-Institut Curie) University and Peking University (PKU) (MoU for official "collaboration and exchange program PSL Qlife/PKU in the Bioimaging field 2020-2024).

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Charles Kervrann: member of the scientific committee of the international "Quantitative BioImaging" (QBI'2019, QBI'2020) conference, member of the scientific committee of the international NEUBIAS 2020 conference, and member of the scientific committee of the JIONC workshop (GdR Ondes, since 2014).
- Patrick Bouthemy: Associate Editor for the ISBI'2019 conference.

10.1.2.2. Reviewer

- Charles Kervrann: reviewer for ISBI'2019.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Charles Kervrann is Associate Editor of the "IEEE Signal Processing Letters" journal.
- Patrick Bouthemy is co-editor in chief of the open access journal "Frontiers in Computer Science", section "Computer Vision and Image Analysis".

10.1.3.2. Reviewer - Reviewing Activities

- Charles Kervrann: Journal of Mathematical Imaging and Vision, IEEE Signal Processing Letters, Nature Communications, IEEE Transactions on Medical Imaging, OSA Biomedical Optics Express.
- Patrick Bouthemy: IEEE Signal Processing Letters.
- Jean Salamero: Nature Methods, Journal of Cell Sciences, Nature Communications, Biology of the Cell, ACS Photonics, Journal of Microscopy.

10.1.4. Invited Talks

Charles Kervrann:

- "Statistical methods for intracellular dynamics classification in live cell imaging", "Bioimage Processing" workshop, June, Cambridge, UK (see [29]).

- "Computational methods for intracellular dynamics in live cell imaging", "Random Walks and Intracellular Transport" workshop, Apr, Manchester, UK (see [28]).
- "A fast statistical colocalization method for 3D live cell imaging and super-resolution microscopy", "Statistical Modeling for Shapes and Imaging" workshop, March, Paris (see [27]).
- "Geolocalization and classification of macromolecules in cryo-electron microscopy with deep-learning", Journées Scientifiques de l'Université de Nantes: "la microscopie électronique pour les sciences du vivant", June, Nantes.
- "Computational methods for fluorescence microscopy", Institut Curie CNRS-UMR 168 Seminar, February, Paris.

Patrick Bouthemy:

- "Intensity-based methods for fully automated registration in 2D and 3D CLEM", COMULIS & BioImaging Austria/CMI conference, November, Vienna, Austria (see [26]).

Jean Salamero:

- "Live cell imaging in High Space-time Resolution" and BioImaging course (Co-Organizer), ReTUBI H2020) Super Resolution meeting and Imaging, October, Lisbon, Portugal.
- "Career Path for the Next Generation of BioImaging Scientist: Training Passport", Global BioImaging 2019 "EOE.V", September, Singapore.

Sylvain Prigent:

- "Portail analyse d'images France-BioImaging", 16èmes Assises Nationales des Plateformes du réseau RT-mfm, March, Rennes.
- "Portail analyse d'images France-BioImaging", 9èmes Journées Scientifiques et Techniques du Réseau des Microscopistes de l'INRA, November, Nantes.

10.1.5. Leadership within the Scientific Community

- Charles Kervrann is member of the executive board of the GdR MIV/ImaBio (2588 - Microscopie Fonctionnelle du Vivant) CNRS and member of the scientific committee of the Interdisciplinary MiFoBio School CNRS (http://www.mifobio.fr).
- Patrick Bouthemy is member of the board of AFRIF (Association Française pour la Reconnaissance et l'Interprétation des Formes).

10.1.6. Scientific Expertise

- Charles Kervrann was member of the selection committee for an Assistant-Professor (Maitre de Conférences) position at the University of Paris-Descartes (Section CNU 26, Mathematics). He was reviewer for European Research Council (ERC Consolidator Grant).
- Patrick Bouthemy was member of the committee for professor promotion at IMT Atlantique.
- Jean Salamero was reviewer for European Research Council (Junior Grant), ANR and ITMO Cancer program.

10.1.7. Research Administration

Charles Kervrann:

- Member of the executive board of the project committee ("bureau du Comite´ des Projets") of the Inria Rennes - Bretagne Atlantique centre since 2010.
- Co-head of the "BioImage Informatics" node (ANR France-BioImaging project http://france-bioimaging.org/), National Research Infrastructure for Biology and Health) since 2011.

Patrick Bouthemy:

- Head of Excellence Lab (Labex) CominLabs (http://www.cominlabs.ueb.eu) since April 2014.
- Deputy member of the board of directors and member of the selection and validation committee of the Images & Réseaux competitivity cluster (http://images-et-reseaux.com/).
- Inria representative in the steering committee of the DGA-Inria collaboration.
- Member of the Research Committee of IMT Atlantique.
- Head of the evaluation committee of the EORD profession of the DGA and head of the HCERES evaluation committee of the DTIS department of ONERA.
- Member of the ANR evaluation committee for the call for proposals regarding the Artificial Intelligence field.

Jean Salamero:

- Director of the National Research Infrastructure in Biology and Health, France BioImaging (2015-2020) (https://france-bioimaging.org/).
- Director of the Service Unit UMS 3714 (2015-2020) CEMIBIO CNRS-Institut Curie.
- Member of the Advisory Committee for the creation of the National Biomedical Imaging Center (NBIC@Beijing, Republic of China) since 2017.
- Member of the Advisory Board of EMBL Core Facilities.
- Member of the Steering Committee of the DIM-ELICIT program (Région Ile de France) since 2016.
- Member of the Qlife "Institut Convergences" since 2018.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Charles Kervrann:

- Engineer Degree: Genomics and Informatics, 4.5 hours, MINES ParisTech.
- Master: From Bioimage Processing to BioImage Informatics, 5 hours, coordinator of the module (30 hours), Master 2 Research IRIV, Telecom-Physique Strasbourg and University of Strasbourg.
- Master: Analysis of Image Sequences, 9 hours, Master 2 Research SISEA, University of Rennes 1.
- Engineer Degree and Master 2 Statistics and Mathematics: Statistical Models and Image Analysis, 37 hours + 15 hours (TP, Emmanuel Moebel), 3rd year, Ecole Nationale de la Statistique et de l'Analyse de l'Information (ENSAI), Rennes.

10.2.2. Supervision

- Anca-Georgiana Caranfil (PhD in progress): Data assimilation methods for cell division mechanisms and molecule trafficking analysis (started in December 2016, supervised by C. Kervrann and Y. Le Cunff (IGDR, Rennes)).
- Gwendal Fouché (PhD in progress): Immersive interaction and visualization of temporal 3D data (started in October 2019, supervised by C. Kervrann, F. Argelaguet (EPC HYBRID, Inria, Rennes), and E. Faure (LIRMM, Montpellier)).
- Yunjiao Lu (PhD in progress): Intracellular dynamics and super-resolution imaging: analysis of bacteria wall at the molecular scale (started in October 2017, supervised by C. Kervrann, A. Trubuil and R. Carballido-Lopez (INRA, Jouy-en-Josas)).
- Léo Maczyta (PhD in progress): Motion saliency in video sequences (started in October 2017, supervised by P. Bouthemy and O. Lemeur (Team Percept, IRISA, Rennes)).

- Sandeep Manandhar (PhD defended [11]): Optical flow methods for 3D fluorescence imaging (defended in November 2019, supervised by P. Bouthemy and C. Kervrann).

- Emmanuel Moebel (PhD defended [12]): New strategies for the identification and enumeration of macromolecules in 3D images of cryo electron tomography (defended in January 2019, supervised C. Kervrann).

- Antoine Salomon (PhD in progress): Statistical aggregation for image analysis in fluorescence microscopy and super-resolution (started in November 2017, supervised by C. Kervrann).

10.2.3. Juries

Charles Kervrann:

- Reviewer of the HdR of E. Baudrier (University of Strasbourg, ICube – UMR 7357).

- Reviewer of the PhDs of A. Davy (University of Paris Saclay, Ecole Normale Supérieure Paris-Saclay, supervised by J.-M. Morel and A. Desolneux), P. Parutto (University of Paris Sciences et Lettres, Ecole Normale Supérieure, supervised by D. Holcman), J.D.K. Hansen (University of Copenhagen, DIKU, Denmark, supervised by F. Lauze).

- President of PhD thesis committee of M. Tassano (University of Paris-Descartes, supervised by J. Delon).

- Member of the PhD committee of P. Naylor (University of Paris Sciences et Lettres, MINES ParisTech, supervised by T. Walter).

- External examiner of the application of M. Arigovindan (Faculty assessment, promotion to the position of Associate Professor with tenure, Indian Institute of Science).

Patrick Bouthemy:

- President of the PhD thesis committee of A. Lopez (University of Rennes 1, supervised by J. Pettré and F. Chaumette).

SISTM Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Societies Involvement

- Boris Hejblum is a member of the chairing committee of the *Société Française de Biométrie*, the French Chapter of the International Biometric Society
- Boris Hejblum is a board member of the "MAchine Learning et Intelligence Artificielle" (MALIA) group of *Société Française de Statistique* (SFdS)
- Mélanie Prague is a board member of the "Jeunes Statisticien.ne.s" group of SFdS
- Marta Avalos is a board member of the "Stat&Sport" group of SFdS

10.1.2. Scientific Events: Organisation

10.1.2.1. General Chair, Scientific Chair

Mélanie Prague co-organized with Jérémy Guedj from Inserm the 4th Workshop on Virus Dynamics https://viraldynamics.sciencesconf.org, 21-23 October in Paris, France.

10.1.3. Scientific Events: Selection

10.1.3.1. Chair of Conference Program Committees

- Robin Genuer Co-organizes a reading group called "Smiling in Bordeaux" (http://www.math.u-bordeaux.fr/~mchave100p/smiling/)
- Boris Hejblum organizes the Biostatistics Seminar Series at the Bordeaux Population Health Inserm Research Center
- Boris Hejblum co-organizes the Bordeaux Statistics Seminar Series (https://indico.math.cnrs.fr/category/367/)

10.1.3.2. Member of the Conference Program Committees

- Mélanie Prague was a member of the 51th Days of Statistics (JdS), the most important annual scientific event in the French-speaking statistical community, organized by the French Statistical Society (SFdS), June 2019, Nancy, France
- Rodolphe Thiébaut was a member of the scientific committee of the national conference on clinical research (EPICLIN)
- Rodolphe Thiébaut is a member of the scientific committee of the IWHOD International Workshop on HIV Observational Databases since 2013 (http://iwhod.org/Committee) and chair in 2020.

10.1.3.3. Reviewer

- NeurIPS (Robin Genuer)
- Workshop at NeurIPS 2019 "ML4H: Machine Learning for Health" (Marta Avalos)

10.1.4. Journal

10.1.4.1. Member of the Editorial Boards

Lifetime Data Analysis (Daniel Commenges)

Statistics Surveys (Daniel Commenges)

Associate editor of International journal of Biostatistics (Melanie Prague)

IMIA Yearb Med Inform (Rodolphe Thiébaut)

10.1.4.2. Reviewer - Reviewing Activities

- AIDS (Rodolphe Thiébaut)
- Am J Public Health (Mélanie Prague)
- Biometrics (Mélanie Prague, Boris Hejblum)
- Bioinformatics (Boris Hejblum)
- IMIA Yearb Med Inform (Marta Avalos)
- International Journal of Epidemiology (Daniel Commenges)
- Journal of Computation Statistics and Data Analysis (Boris Hejblum)
- Journal of the American Statistical Association (Robin Genuer)
- Journal of the Royal Statistical Society: Interaction (Mélanie Prague)
- JRSS-B (Mélanie Prague)
- Operations research (Robin Genuer)
- PLOS Computational Biology (Boris Hejblum)
- Society of clinical trial (Mélanie Prague)
- Statistical Methods in Medical Research (Mélanie Prague)
- Statistical science (Mélanie Prague)
- Trials (Laura Richert)

10.1.5. Invited Talks

- 3rd EcoSta Conference – 25-27th June 2019. Taïchung, Taïwan. A variance component score testapplied to RNA-Seq differential analysis. [B Hejblum]
- 12th International Conference of the ERCIM Working Group on Computational and Methodological Statistics – 14-16th December 2019, London, UK. Scaling up nonparametric Bayesian clustering with MCMC for big data applications. [B Hejblum]
- The 9th International Digital Public Health Conference – 20-23 November 2019, Marseille, The Challenges of Implementing Healthcare Technology and Innovation across Europe and Beyond [R Thiebaut]
- Conférence du centre de recherche du CHU de Sainte Justine – 17 October 2019, Montreal, Canada - *Science des données en épidémiologie clinique: exemples en vaccinologie*. [R Thiebaut]
- 4th Workshop on viral dynamics – 21-23rd October 2019, Paris - Modeling to optimize vaccine development against Ebola [R Thiebaut]
- INFECTION, IMMUNITY AND INFLAMMATION PROGRAMME Mini-symposium Mathematical Immunology in memoriam Robin Callard - 3rd October 2019, Institute of Child Health, London - Modelling in Immunology from 2007 to tomorrow, an overview of the work done with and inspired by Robin Callard [R Thiebaut]
- Workshop ITUN CESI, CHU Nantes, 3rd September. Understanding and predicting the effect exogeneous IL-7 in HIV infected patients through mathematical modelling: toward personnalised medicine. [R Thiebaut]
- 14th Colloquium of ADEA *La transformation du système de santé : l'hôpital de demain*, Cambo les Bains, September. L'intelligence artificielle [R Thiebaut]
- Robin's Callard symposium – Institute of Child Health, London – 4 October [R Thiebaut]

10.1.6. Oral contributions in conferences and colloquium

- Several members contributed to the 51th Days of Statistics (JdS), the most important annual scientific event in the French-speaking statistical community, organized by the French Statistical Society (SFdS), June 2019, Nancy, France [R Genuer, M Prague, M Avalos]

- UseR! 2019, Toulouse, France – July 2019. VICI: a Shiny app for accurate esti-mation of Vaccine Induced Cellular Immunogenicity with bivariate modeling. [B Hejblum]
- Joint Statistical Meeting 2019, Denver, USA – July 2019. Can you trust differential expression methods for RNA-seq data analysis ? [B Hejblum]
- 6th *Colloque francophone international sur l'enseignement de la statistique* 2019, Nancy, France– June 2019. *Enseigner la science des données en santé publique* [B Hejblum]
- Medinfo 2019, Lyon, 25-30 August 2019 [R Thiebaut]
- Several Talks at Virus Dynamics, October, Paris [R. Thiebaut, M. Alexandre, Q. Clairon].
- 32nd IEEE International Symposium on Computer-Based Medical Systems (CBMS) [H. Lorenzo].
- GDR Statistics and Health, Paris, France, October 2019 [L. Villain].
- StatOmique day - November 2019 [M. Gauthier]

10.1.7. Poster contributions in conferences and colloquium

- The French Health Data System applied to health research Meeting - June 2019, Rennes, France [M Avalos]
- PAGE June Stocholm [M. Prague, M. Alexandre]
- StatOmique day - Novembrer 2019, Paris [L. Villain]

10.1.8. Scientific Expertise

- Rodolphe Thiébaut is an expert for INCA (Institut National du Cancer) for the PHRC (Programme hospitalier de recherche Clinique en cancérologie) and for the PRME (Programme de recherche médico-économique en cancérologie).
- Rodolphe Thiébaut is a member of the CNU 46.04 (Biostatistiques, informatique médicale et technologies de communication).
- Rodolphe Thiébaut is a member of the Scientific Council of Inserm.
- Rodolphe Thiébaut is a member of the commitee "Biologie des Systèmes et Cancer (Plan Cancer)", a member of the Scientific Advisory Board of the "Institut Pierre Louis d'Epidémiologie et de Santé Publique" (UPMC, Dir : Dominique Costagliola), a member of the independent committee of international trials ODYSSEY and SMILE, a member of the scientific council of Muraz's Center (Bobo-Dioulasso, Burkina Faso)
- Mélanie Prague is an expert for ANRS (France Recherche Nord&Sud Sida-HIV Hépatites) in the CCS13 (Recherches cliniques et physiopathologiques dans l'infection à VIH) and AC 47.
- Laura Richert is an expert for the PHRC (Programme hospitalier de recherche Clinique).
- Marta Avalos is an expert for the ANSM (Agence nationale de sécurité du médicament et des produits de santé)

10.1.9. Research Administration

Daniel Commenges is the director of the Biostat-Info axis in the Inserm BPH (Bordeaux Public Health) institute.

Rodolphe Thiébaut is the director of the department of Public Health in University of Bordeaux and a member of the Inserm Scientific Council

Laura Richert is coordinator of the Clinical epidemiology module of the Clinical Investigations Center (CIC1401 Bordeaux)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

In class teaching

Master: Rodolphe Thiébaut is head of the Digital Public Health graduate program, University of Bordeaux.

Master : All the permanent members and several PhD students teach in the Master of Public Health (M1 Santé publique, M2 Biostatistique and/or M2 Epidemiology and/or M2 Public Health Data Science) and the Digital Public Health graduate program, University of Bordeaux.

Master : Marta Avalos, Robin Genuer, Louis Capitaine and Marine Gautier teach in the Master of Applied Mathematics and Statistics (1st and/or 2nd year), University of Bordeaux.

Master : Marta Avalos teaches in the 2nd year of the Master of "Management international : Développement pharmaceutique, Production et Qualité opérationnelle", University of Bordeaux.

Bachelor: Laura Richert and Edouard Lhomme teach in PACES and DFASM1-3 for Medical degree at Univ. Bordeaux

Master: Hadrien Lorenzo teach in the third year engineering school ENSAI, Rennes and in the "Ecole Santé Science" Program (dual degree in Health and Science), University of Bordeaux.

Master: Laura Richert teaches in the Master of Vaccinology from basic immunology to social sciences of health (University Paris-Est Créteil, UPEC)

Teaching unit coordination: Laura Richert, Rodolphe Thiébaut, Robin Genuer, Boris Hejblum and Marta Avalos coordinate several teaching units of Master in Public Health (Biostatistics, Epidemiology, Public Health), M2 Public Health Data Science. Laura Richert coordinates the teaching unit "Experimental Designs" (M2 Epidemiology) and teaching unit "Omics Data" (M2 Public Health Data Science), University of Bordeaux

Internation summer school: Laura Richert coordinates the summer school course "Big data in immunology" University of Bordeaux. All permemanent team members teach in this course.

H Lorenzo participated to the University Course *Big data et statistique pour l'ingénieur (BDSI)*, Ecole Nationale Supérieure de Cognitique (ENSC), Bordeaux.

E-learning

Master: Marta Avalos is head of the first year of the e-learning program of the Master of Public Health, University of Bordeaux.

Master: Marta Avalos teaches in the e-learning program of the Master of Public Health (1st and 2nd year)

ODL University Course: Robin Genuer is head of the Diplôme universitaire "Méthodes statistiques en santé.

ODL University Course: Mélanie Prague teaches in the Diplôme universitaire "Méthodes statistiques de régression en épidémiologie".

ODL University Course: Laura Richert co-coordinates and teaches in the Diplôme universitaire "Recherche Clinique".

ODL University project: Robin Genuer participated to the IdEx Bordeaux University "Défi numérique" project "BeginR" (http://beginr.u-bordeaux.fr).

10.2.2. Supervision

HdR: Laura Richert, *Statistical approaches and methodological developments to optimize clinical vaccine research*, Université de Bordeaux, defence date 17th Dec 2019

PhD: Edouard Lhomme, *Analyse des déterminants de la réponse immunitaire post-vaccination dans des stratégies vaccinales expérimentales*, defence date 25th Nov, directed by Laura Richert

PhD: Hadrien Lorenzo, *Analyse supervisée multibloc en grande dimension*, defence date 27th Nov, co-directed by Rodolphe Thiébaut and Jérôme Saracco (CQFD team)

PhD: Perrine Soret, "Régression pénalisée de type Lasso pour l'analyse de données biologiques de grande dimension : application à la charge virale du VIH censurée par une limite de quantification et aux données compositionnelles du microbiote", Université de Bordeaux, defence date 28th Nov, supervisor: Marta Avalos

PhD: Soufiane Ajana "Comparison of linear and non-linear machine learning approaches to predict Age-related Macular Disease (AMD) risk in a survival framework", defense's date 4th Nov, co-supervised by Boris Hejblum and Hélène Jacqumin-Gadda (Inserm) and Cécile Delcourt (Inserm), from Sept 2016.

PhD in progress: Marie Alexandre "Mechanistic modeling and optimization of vaccine response in HIV and Ebola", co-directed by Mélanie Prague and Rodolphe Thiébaut, from Oct 2018.

PhD in progress: Marine Gauthier "Methods for bulk and single-cell RNA-seq data analysis in vaccine research", co-directed by Boris Hejblum and Rodolphe Thiébaut, from Sept 2018.

PhD in progress: Louis Capitaine, *Random forests for high-dimensional longitudinal data*, from Oct 2017, co-directed by Robin Genuer and Rodolphe Thiébaut.

PhD in progress: Madelyn Rojas *Self-management of injury risk and decision support systems based on predictive computer modelling. Development, implementation and evaluation in the MAVIE cohort study*, from Oct 2017, (Injury Epidemiology team, Inserm U1219, ED SP2) co-directed by Emmanuel Lagarde (Inserm) and Marta Avalos.

Several team's members supervised Master 2 (T. Alin, A. Devaux, G. Sotton, A. Herteau, T. Ferte) and Master 1 (V. Gasque, M.H. Ibrahim, C. Lemoigne, V. Kochegarov) internship students.

10.2.3. *Juries*

Boris Hejblum was involved in the PhD defence jury of Soufiane Ajana (university of Bordeaux).

Marta Avalos was involved in the PhD defence jury of Perrine Soret (University of Bordeaux).

Laura Richert was involved in the PhD defence jury of Edouard Lhomme (University of Bordeaux).

Robin Genuer was reviewer of the thesis of Antonio Sutera (University of Liège).

Rodolphe Thiébaut was involved in the PhD defence jury of Edouard Lhomme, Hadrien Lorenzo, Perrine Soret, Sophie Lefèvre-Arbogast, Corentin Segalas (University of Bordeaux), Simon Bussy, Hugo Arlegui, Jeanne Tamarelle (Paris), and Alban Caporossi (Lyon). He was also a reviewer of the HDR of Encarnita Mariotti-Ferrandiz (Sorbonne University, Paris) and took part in her defence jury.

Mélanie Prague was involved in the PhD defence jury of Chiara Nicolo (University of Bordeaux) and Steven Sanche (University of Montreal, CA)

Marta Avalos is a member of the follow-up dissertation committee of 2 PhD students: Alexandre Conanec (Statistics, IMB, ED MI) and Madelyn Rojas (Epidemiology, ED SP2).

Mélanie Prague is a member of the follow-up dissertation committee of 2 PhD students: Jonas Beal (Institut Curie) and Marie astrid Metten (University of Rennes).

Laura Richert, Rodolphe Thiébaut, Robin Genuer, Boris Hejblum, Edouard Lhomme and Marta Avalos participated to the juries of Master in Public Health (Biostatistics, Epidemiology, Public Health)

Robin Genuer and Marta Avalos participated to the juries of Master of Applied Mathematics and Statistics (2nd year), University of Bordeaux.

Edouard Lhomme participated to the juries of medical thesis defenses, Medical School of Bordeaux University

10.3. Popularization

10.3.1. *Internal or external Inria responsibilities*

Mélanie prague is part of two committees at Inria: "ADT - Aide au développement technologique" and "CER - Comission Emploi recherche".

10.3.2. Articles and contents

Mélanie Prague participated to the video reportage produced by the Inria's communication service

10.3.3. Interventions

Mélanie Prague participated at the "Fête de la Science" for high school students on October.

10.3.4. Internal action

R Thiébaut gave the talk "VIRUS EBOLA: Comment la modélisation permet d'aider au développement des vaccins ?" in November at "Unithé ou café", Inria BSO, Talence.

H Lorenzo presented a poster *Apprentissage supervisé pour données massives multi-blocs incomplètes* in the anual workshop (*JED*) of the Doctoral School of Societies, Politics and Public Health (ED SP2), University of Bordeaux.

STEEP Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

Jean-Yves Courtonne co-organized a special session entitled *Advances in understanding the physical structures of economies: Materials, energy, and the services they provide* at the 13th International Conference of the European Society for Ecological Economics, Turku, Finland, June 2019. https://esee2019turku.fi/specialsessions

9.1.1.1. Member of Conference Program Committees

- Peter Sturm, ORASIS 2019 (Journées francophones des jeunes chercheurs en vision par ordinateur), Saint-Dié-des-Vosges, France, https://orasis2019.sciencesconf.org
- Peter Sturm: Inria Science Days (Journées Scientifiques Inria), Lyon, France.

9.1.2. Invited Talks

- Jean-Yves Courtonne and Guillaume Mandil: *Durabilité forte : état des lieux et programme de recherche pour l'évaluation d'alternatives socio-techniques*, Colloque Soutenabilité des systèmes socio-techniques, Université Technologique de Troyes, France.
- Pierre-Yves Longaretti, *Global environmental collapse risks: is digital technology a problem or a solution?*, Keynote speech at LIG, Grenoble, France, June 2019.

9.1.3. Scientific Expertise

Jean-Yves Courtonne and Guillaume Mandil participate in the Steering Committe (COPIL) of the CODEC (Contrat d'Objectifs Déchets et Économie Circulaire) of Grenoble Alpes Métropole (Grenoble Metropolitan Area, https://www.lametro.fr/).

Team members intervened in training programs dedicated to IT professionals and teachers organized by EcoInfo [0], a French network dedicated to eco-responsible digital sciences and technologies:

- Guillaume Mandil provided a training session on Life Cycle Analysis for EcoInfo members, Grenoble, May 2019.
- Pierre-Yves Longaretti, Guillaume Mandil, and Peter Sturm gave lectures/training sessions at the week-long training seminar *Impact Environnemental du Numérique – Comprendre et Agir*, Autrans, France, September 2019.

9.1.4. Research Administration

- Emmanuel Prados and Guillaume Mandil are members of the Grenoble section of the *Labos 1.5* initiative: an international, cross-disciplinary collective of academic researchers who share a common goal: to better understand and reduce the environmental impact of research, especially on the Earth's climate, https://labos1point5.org/en/home/
- Emmanuel Prados is member of the working group on sustainable development of the LJK lab, whose goal is to define and environmental charter and an environmental scientific policy for the lab.
- Peter Sturm is Deputy Scientific Director of Inria, in charge of the domain Perception–Cognition–Interaction.

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[0] https://ecoinfo.cnrs.fr

- Peter Sturm co-founded and co-animated (with Céline Serrano) a national working group at Inria whose goal was to provide suggestions for the institute concerning environmental issues, in particular: (i) research to address the increasing environmental challenges (including directions of research and administrative aspects), (ii) how to reduce the ecological impact of the institute, and, more generally, (iii) ways of fostering responsible science ("sciences impliquées"). The working group produced a report [9] and several of its recommendations have already been taken up by Inria.

- Peter Sturm is member (representative of personnel) of the CLHSCT of Inria Grenoble Rhône-Alpes (Local Committee for Hygiene, Security and Working Conditions).

- Peter Sturm is member of the CLDD of Inria Grenoble Rhône-Alpes (Local Sustainable Development Commission).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Jean-Yves Courtonne, Serge Fenet, Fausto Lo Feudo, Pierre-Yves Longaretti, Guillaume Mandil, Régis Perrier, Emmanuel Prados, Peter Sturm, and Françoise Berthoud (CNRS): *Les véritables enjeux environnementaux – compréhension, modélisations et outils quantitatifs*, 18 hours, graduate course, Université Grenoble Alpes, https://team.inria.fr/steep/seminars/cours-ed-2019/

Jean-Yves Courtonne: *Méthodes d'évaluation environnementale*, 1h30, Ensimag (Grenoble INP)

Jean-Yves Courtonne: *Méthodes d'évaluation environnementale*, 2h, Programme IDEX Green University, Université Grenoble Alpes

Pierre-Yves Longaretti: *Global changes, planetary limits and collapse risks*, 3h, Evry ENSIIE engineering school, May 2019.

Pierre-Yves Longaretti: *Global changes, planetary limits and collapse risks*, 3h, Grenoble ENSIMAG engineering school, October 2019.

Serge Fenet, Guillaume Mandil and Régis Perrier have regular teaching duties at the universities employing them.

9.2.2. Supervision

PhD in progress: Michela Bevione, *Enjeux socio-écologiques, métabolisme territorial, création de richesse : application à la vallée de la Maurienne*, started in October 2016, supervised by Pierre-Yves Longaretti and Nicolas Buclet (PACTE laboratory)

PhD in progress: François-Rémi Mazy, *Vers une théorie et une implémentation algorithmique cohérentes des modèles statistiques de changement d'usage des sols*, started in October 2019, supervised by Pierre-Yves Longaretti

PhD in progress: Mathilde Jochaud du Plessix, *Robustesse et validité des modèles dynamiques de risques systémiques globaux*, supervised by Serge Fenet and Pierre-Yves Longaretti

9.2.3. Juries

- Pierre-Yves Longaretti was external expert of Grégoire Chambaz masters' thesis (UNIL, Lausanne): *The Evolutionary Dynamics of Societies Critical Synthesis of the Work of J.A. Tainter* et al. *on Sustainability, Collapse, Resilience and Energy Transitions.*

- Peter Sturm was reviewer of the Habilitation thesis of Gilles Simon (Université de Lorraine) and of the PhD thesis of Yilin Zhou (Université Paris-Est) and chaired the PhD thesis committee of Julien Salotti (Université de Lyon).

9.3. Popularization

9.3.1. Education

- Guillaume Mandil gave a half-day training course to a group of high school teachers (Lycée Mounier - CLEPT), July 2019.
- Peter Sturm gave a lecture on the environmental impact of ICT, during a training week of high school teachers of the Hauts-de-France Region, Lille, France, June 2019.

9.3.2. Conference-debate series and YouTube-channel "Understanding and Acting"

Following a dynamics of exponential growth in a finite world, humanity today faces a number of unprecedented and tightly interlinked challenges. With a growing number of environmental limits being largely and irreversibly exceeded (GHG concentrations in the atmosphere, biodiversity loss, soil erosion, freshwater shortages...), social, economic, geopolitical, humanitarian (etc.) consequences are becoming more urgent than ever to address, while the threat of an uncontrolled global collapse is now more than a prospect. It is urgent to initiate deep, structural, socioeconomic changes on virtually all aspects of our increasingly global societies (economics, industrial and agricultural production, consumption, education, all requiring major new local and global policies).

In view of these facts, the STEEP research team has initiated in 2016 a series of conferences-debates entitled "Understanding & Acting" (*Comprendre et Agir*) that examines these issues in order to help researchers and citizens to increase their awareness of the various issues at stake in order to initiate relevant individual and collective actions. From now on, the scientific community at large must realize that its duty also lies in helping citizens to better understand these issues. If the fraction of people in society whose privilege is to be paid to think about society's problems do not seize this opportunity in the critical times we face, who will? Researchers must become more involved in the search of socioeconomic alternatives and help citizens to implement them. The interactions between researchers and citizens must also to be reinvented.

The presentations of this series of conferences typically last between 30 to 45 minutes; they are followed by a 45 minute public debate with the audience. The presentations are captured on video and then made directly accessible on the YouTube Channel "Comprendre et Agir". At the end of 2019 the YouTube channel has about 5,400 subscribers and reached a total of about 425,000 viewings.

The conference-debates of 2019:

- Olivier Vidal, Université Grenoble Alpes: Resources and energy at the global scale in the context of the energy transition (*Matières premières et énergie à l'échelle mondiale dans le contexte de la transition énergétique*)
- Grégoire Chambaz, Lausanne: How real is the risk of a blackout? (*Le risque de blackout est-il réel ?*)
- Christophe Bonneuil, CNRS and École des hautes études en sciences sociales: When the whites intended to preserve the planet – A history of geo-power, 1865-1914 (*Quand les blancs voulurent conserver la planète. Une histoire du géopouvoir, 1865-1914*)
- Peter Sturm, STEEP: Environmental challenges and what is blocking acting on them (*Enjeux environnementaux et blocages à l'action*)
- Sophie Wahnich, CNRS and Institut interdisciplinaire d'anthropologie du contemporain: Why was King Louis XVI destituted in 1792? Social imaginaries from 1770 to 1792 (*Pourquoi le roi Louis XVI a t-il été destitué en 1792 ? Imaginaires sociaux de 1770 à 1792*)
- Denis Dupré, STEEP: Collapses and finance (part I) – Is Finance a collapse pyromaniac? (*Effondrements et finance (partie I) – La Finance : pyromane des effondrements ?*)

Link to the web page of the series (program, abstracts, dates, complements etc.): https://team.inria.fr/steep/les-conferences-debats-comprendre-et-agir/

Link to the YouTube channel: https://www.youtube.com/channel/UCJbcXCcOA63M8VMysAbmt_A

9.3.3. Interventions

Guillaume Mandil participated in the preparation of an exposition at Cité des Sciences (Paris).

Team members gave the following general audience talks:

- Serge Fenet: Talk *Design et anthropocène : business as unusual – Une cartographie des risques par le prisme de la systémique* at the *Biennale Internationale du Design*, St-Étienne, France, May 2019.

- Serge Fenet: *Effondrements et anthropocène à la lumière de la dynamique des systèmes* at ESC Clermont-Ferrand, France, May 2019.

- Serge Fenet: *Technologies numériques et catastrophe environnementale : des liens complexes* at École Centrale de Lyon, for a general audience of master students.

- Pierre-Yves Longaretti: Seminar *Voluntary minimal consumption: stakes, obstacles, levers*. EcoInfo thematic school, November 2019.

- Pierre-Yves Longaretti: Seminar *Climate Change and strategic surprise*, Swiss military history and prospective center, December 2019.

- Pierre-Yves Longaretti: Round table discussion, *Will we all be farmers tomorrow? (Demain, tous paysans ?)*, Transition Towns biennial meeting, Grenoble, March 2019.

- Pierre-Yves Longaretti: Round table discussion, *Agriculture: global and local stakes (Agriculture : enjeux locaux et globaux)*, Forum citoyen alimentation & santé : La transition agro-alimentaire dans nos assiettes, Grenoble, November 2019.

- Emmanuel Prados: Institutional Conference *Veille techno à Polytech*, Grenoble, France, December 9-16, 2019. Organized by the MSTII Graduate School of Université Grenoble Alpes (Bernard Tourancheau).

- Emmanuel Prados: Institutional Conference organized by UniLaSalle (Hervé Leyrit), Beauvais, France, October 17, 2019.

- Emmanuel Prados: Conference at the back-to-school day of EPITA LYON (computer intelligence engineering school), Lyon, France, September 10, 2019. Organizer: Epita (Lamia Derrode).

- Emmanuel Prados: Conference on environmental transition for elected politicians of the Grésivaudan community of communes, open to the general public, Le Versoud, France, June 3rd, 2019. Organizer: Le Versoud City Hall (Claire Desmaris).

- Emmanuel Prados: General public conference, Crolles, France, June 22 , 2019. Organizer: Association *Ecocitoyens*.

- Emmanuel Prados: Conference at the *CitizenCampus* entitled *Transition, démocratie, effondrement : la quadrature du cercle ?*, Grenoble, France, March 29, 2019. Organizer: Université Grenoble Alpes. https://twitter.com/YannToma/status/1112094922499330049

- Emmanuel Prados: Conference/debate *Quelles transitions dans un contexte d'effondrement ?*, Palais des Sports de Grenoble, France, March 13, 2019. Organizer: Ville de Grenoble. http://villesentransition.grenoble.fr/events/quelles-transitions-dans-un-contexte-deffondrement/

- Emmanuel Prados: Conference within the ISN cycle, *Le numérique face aux enjeux environnementaux et sociétaux*, Grenoble, France, April 10, 2019. Organizer: Inria. https://www.canal-u.tv/video/inria/le_numerique_face_aux_enjeux_environnementaux_et_societaux.50079

- Emmanuel Prados: Invited conference at the Loria colloquium, *Le numérique face à la catastrophe environnementale et sociétale*, Nancy, France, February 8, 2019. Organizer: Loria (http://www.loria.fr/). https://www.loria.fr/fr/communication/colloquium-loria-exposes-et-videos/

- Peter Sturm made a "Tour de France" by bicycle, to raise awareness on environmental issues. During this trip (May 15 to July 4), he visited all Inria centers and gave a talk on *Environmental challenges and what is blocking acting on them* in ten locations (Sophia Antipolis, Montpellier, Bordeaux, Rennes, Saclay, Rocquencourt, Paris, Nancy, Lyon, Grenoble). His visits were accompanied by various events, including seminars by local researchers, meetings with sustainable development commissions, social gatherings, etc. This initiative is described at https://project.inria.fr/inriavelo/fr/, see also the daily blog https://www.polarsteps.com/PeterSturm3/1692663-inri-a-velo.

TONUS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Member of the Organizing Committees

Philippe Helluy: Workshop on Compressible Multiphase Flows : Derivation, closure laws, thermo-dynamics, IRMA, May 2019.

Yannick Privat with Raphaël Côte and Thomas Duyckaerts: Workshop Control and dynamics of PDEs, Strasbourg, October 2019.

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

Yannick Privat is a member of the editorial boards of:

- AIMS Applied Mathematics,
- Evolution Equations and Control Theory.

Philippe Helluy is member of editorial board in:

- Computational and Applied Mathematics,
- International Journal of Finite Volume.

10.1.2.2. Reviewer - Reviewing Activities

- Emmanuel Franck was a reviewer for:
    - Numerical Methods for Partial Differential Equations.
- Yannick Privat was a reviewer for:
    - Applied Math. and Optimization,
    - Esaim Control Optimization and Calculust of Variations,
    - Discrete and Continuous Dynamical Systems,
    - Esaim Proceeding,
    - Journal de Mathématiques Pures et Appliquées,
    - Journal of Math. Biology,
    - Proceedings of the Royal Society A,
    - SIAM Journal on Control and Optimization,
    - Zeitschrift für angewandte Mathematik und Physik.
- Philippe Helluy was a reviewer for:
    - Journal of Computational Physics,
    - Computers and Fluids,
    - Numerical Methods for Partial Differential Equations,
    - European Journal of Mechanics / B Fluids.
- Matthieu Boileau was a reviewer for:
    - Proceedings of the Combustion Institutes.

10.1.3. Invited Talks and participations to conference as speaker

Yannick Privat:

- New Trends in PDE-Constrained Optimization, Linz, Austria. October 2019.
- Shape optimization and application days, Ecole Polytechnique, France. October 2019.
- "Groupement Euro-Maghrébin de Mathématiques et leurs Interactions". Madrid, Spain. November 2019.
- Dynamics, Equations and Applications (organizer of a mini-symposium), Cracovia, Poland. September 2019.

Emmanuel Franck:

- ICIAM 2019 (organizer mini-symposium), Valencia, Spain. July 2019.
- Workshop Multi-scale, Inria Nancy, June 2019.
- Jorek Meeting 2019, Munich, May 2019.

Laurent Navoret:

- ICIAM 2019 (organizer of a mini-symposium), Valencia, Spain. July 2019.

P. Helluy:

- ICNAAM 2019, Rhodes, September 2019
- NUMHYP, Malaga, June 2019.
- NUMKIN, Garching, Ocotober 2019.

Laura Mendoza:

- ICIAM 2019, Valencia, Spain. July 2019.
- Iter codeCamp, Cadarache, April 2019.
- EuroScipy 2019, Bilbao, September 2019.
- PyConFr, Bordeaux, November 2019.

Matthieu Boileau:

- Computation and learning days. April 2019. Lyon.
- Workshop Compressible multiphase flows, Strasbourg 2019.

10.1.4. Research Administration

Philippe Helluy:

- Director of the IRMA mathematics institute.

Mickael Gutnic:

- Director of the mathematics department (IRMA) in Strasbourg university.

Yannick Privat:

- Member of CNU section 26,
- Member of expert committee at IRMA Strasbourg

Matthieu Boileau:

- Manager of the "GDR calcul",
- Co-Manager of the network "metier calcul",
- Member of the "Commission de la Recherche du Conseil Académique de l'Université de Strasbourg"

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: E. Franck, "Informatics S6", 35h, L3, Strasbourg University, France.

Master: Y. Privat, "Optimal control", 64h, M2, Strasbourg University, France.

Master: Y. Privat, "Optimization", 64h, M1, Strasbourg University, France.

Licence: Y. Privat, "Nonlinear Optimization", 52h, L3, Strasbourg University, France.

Agrégation: Y. Privat, "Text study", 30h. Strasbourg University, France

Licence: C. Courtès, "Scientific computing", 37h, L3, Strasbourg University, France.

Licence: C. Courtès, "Numerical analysis", 34h, L3, Strasbourg University, France.

Licence: C. Courtès, "Numerical analysis", 18h, L2, Strasbourg Unversity, France.

Licence: C. Courtès, "Multiple variables function", 10h, L2, Strasbourg Unversity, France.

Licence: L. Navoret, "Nonlinear Optimization", 18h, L3, Strasbourg University, France.

Licence: L. Navoret, "Statistics for biologists", 21.5h, L2, Strasbourg University, France.

Master: L. Navoret, "Scientific computing", 35h, M1, Strasbourg University, France.

Master: L. Navoret, "Numerical methods for PDEs", 30h, M1, Strasbourg University, France.

Master: L. Navoret, "Optimization", 12h, M1, Strasbourg University, France.

Master (physics): L. Navoret, "Numerical resolution techniques for engineering", 22h, M1, Strasbourg University, France.

Master (Agregation): L. Navoret, "Scientific computing", 50h, M2, Strasbourg University, France.

Master (cell physics): L. Navoret, "Basics in mathematics", 24h, M2, Strasbourg University, France.

Licence, P. Helluy, "Numerical analysis", 17h, L3, Strasbourg University, France.

Master, P. Helluy, "Scientific computing", 20h, Préparation agrégation, Strasbourg University, France.

Master, P. Helluy, "Scientific computing", 28h, M1, Strasbourg University, France.

Master, P. Helluy, "Hyperbolic systems", 35h, M2, Strasbourg University, France.

Licence, M. Boileau, "informatic", 10h, L3, Strasbourg university, France.

Master, M. Boileau, "data sciences", 20h , M2, Strasbourg University, France.

Master, M. Boileau, "Parallel computing", 20h, M1, Strasbourg University, France.

Master, M. Boileau, "Python for science", 36h, Strasbourg University, France.

Other, M. Boileau, "Basic for python", 14h, Urfist (Unité Régionale de Formation à l'Information Scientifique et Technique), France.

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10.2.2. Supervision

PhD in progress: G. Mestdagh, "Suivi de tumeur en temps réel par des méthodes d'optimisation", Strasbourg university. Beginning: September 2019. Y. Privat, S. Cotin.

PhD in progress: J. B. Arnau, "Stratégie de contrôle d'une population de moustiques pour la lutte contre les arbovirus". Beginning: September 2019. Y. Privat, Luis Almeida.

PhD in progress: A. Courtais, "Contrôle optimal de contacteurs à lit fixe par fabrication additive". Beginning: September 2017. Y. Privat, F. Lesage and A. Latifi.

PhD in progress: Idriss Mazari, "Répartition des ressources dans un enclos optimisant la survie des populations". Beginning: September 2017. Y. Privat, G. Nadin.

PhD in progress: Alexandre Delyon, "Étude de la géométrie des œufs de certains branchiopodes". Beginning: September 2016. Y. Privat, A. Henrot.

PhD in progress: Mustafa Gaja, "Compatible Finite Elements for Wave and Fluid Models: Application to Plasma Physics". Beginning: October 2015. E. Franck, E. Sonnendrücker (main supervisor).

PhD in progress: Pierre Gerhard, "Numerical methods for kinetic models. Application to building acoustic". Beginning: Ocotober 2015. P. Helluy (main supervisor), L. Navoret.

PhD in progress: Romane Helie, "Relaxation methods for kinetic models in plasma physics". Beginning: October 2019. P. Helluy (main supervisor), L. Navoret, E. Franck.

PhD in progress: Marie Houillon: "Modeling of thin wires in electromagnetic software", Advisors:Philippe Helluy and Laurent Navoret, from October 2017, Labex Irmia support.

PhD in progress: Lucie Quibel (CIFRE support): in collaboration with EDF Chatou, from October2017, Advisor: Philippe Helluy.

PhD: Maxime Schmitt: "Optimization of scientific software with arbitrary mesh refinement", Defense: September 2019, Advisors: Philippe Helluy and Cédric Bastoul (CAMUS team). Labex Irmia support.

10.2.3. Juries

Y. Privat was member of jury of the PhD committee of F. Feppon, Ecole Polytechnique.

Y. Privat was member of jury of the PhD committee of A. Rebei. Paris Sciences et Lettres university.

Y. Privat was reviewer of jury of the PhD committee of N. Lebbe. Grenoble university.

P. Helluy was reviewer of jury of the PhD committee of S. Fornet. Toulouse, ISAE.

P. Helluy was reviewer of jury of the PhD committee of M. Kadiri. Normandie university.

P. Helluy was member of jury of the PhD committee of S. Bulteau. Nantes university.

P.Helluy was member of jury of the PhD committee of P. A. Giorgi. Aix-Marseille university.

10.3. Popularization

L. Navoret were allowed to participate in the "fete de la science"

XPOP Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Selection

10.1.1.1. Member of the Conference Program Committees

- ALT 2019
- CLAPEM 2019, Merida, Mexico
- useR!2019

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- Stochastic Processes and their Applications
- Journal of Statistical Planning and Inference
- Journal of Computational and Graphical Statistics

10.1.3. Invited Talks

- International Federation of Classification Societies, Thessaloniki, Greece, August 2019.
- useR!2019, Toulouse, France, July 2019.
- R in Official Statistics, Bucharest, Romania, May 2019.
- French Statistical Society, France, Nancy, June 2019.
- Statlearn 2019, Grenoble, France.
- The Big Sick Conference, Zermatt, Switzerland, February, 2019.
- REDIF 2019, La Habana, Cuba, October 2019.
- 4th Worshop on Virus Dynamics, Paris, October 2019.
- ModelBio 2019, Salamnca, Spain, November 2019.

10.1.4. Leadership within the Scientific Community

- Eric Moulines is in charge of the academic supervision of the International Laboratory of Stochastic Algorithms and High-dimensional inference, National Research University, Higher School of Economics, funded by the Russian Academic Excellence Project.
- Eric Moulines is associate researcher of the Alan Turing Institute
- Eric Moulines is elected member of the French Académie des Sciences.
- Julie Josse is visiting researcher at Google France

10.1.5. Scientific Expertise

- Marc Lavielle is member of the Scientific Committee of the High Council for Biotechnologies.
- Marc Lavielle is member of the evaluation committee of the International Center for Mathematics (CIMAT), Guanajuato, Mexico.
- Eric Moulines is member of the award committee of foundation "Charles Defforey".

10.1.6. Research administration

- Marc Lavielle is member of the Scientific Programming Committee (CPS) of the Institute Henri Poincaré (IHP).

- Eric Moulines is a board member of the Institut de Convergence DataIA.
- Julie Josse is elected member of the R foundation.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master : Julie Josse, Statistics with R, 48, M2, X-HEC

Master : Eric Moulines, Regression models, 36, M2, X-HEC

Engineering School : Eric Moulines, Statistics, 36, 2A, X

Engineering School : Eric Moulines, Markov Chains, 36, 3A, X

Engineering School : Erwan Le Pennec, Statistics, 36, 2A, X

Engineering School : Erwan Le Pennec, Statistical Learning, 36, 3A, X

Engineering School : Marc Lavielle, Statistics in Action, 48, 3A, X

10.2.2. Supervision

PhD defended : Nicolas Brosse, June 2019, Eric Moulines

PhD defended : Geneviève Robin, June 2019, Julie Josse and Eric Moulines

PhD defended : Belhal Karimi, September 2019, Marc Lavielle and Eric Moulines

PhD in progress : Marine Zulian, October 2016, Marc Lavielle

PhD in progress : Wei Jiang , October 2017, Julie Josse and Marc Lavielle

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Eric Moulines was member of the Evaluation Committee of Inria.

10.3.2. Creation of media or tools for science outreach

Marc Lavielle developed and maintains the learning platform Statistics in Action. The purpose of this online learning platform is to show how statistics (and biostatistics) may be efficiently used in practice using R. It is specifically geared towards teaching statistical modelling concepts and applications for self-study. Indeed, most of the available teaching material tends to be quite "static" while statistical modelling is very much subject to "learning by doing".

Julie Josse (with Nicholas Tierney and Nathalie Vialaneix) developed and maintains the website R-miss-tastic, A resource website on missing data.

<p align="center" style="color:red">AGORA Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Oana Iova was the scientific chair of the first Low Power and Wide Area Networks Days (GDR RSD), 11-12 July 2019, Lyon.
- Oana Iova was co-chair of NewNets 2019 - The 1st Workshop on Emerging Technologies and Trends in Engineering Low-Power Networks (collocated with IEEE WF-IoT), April 15, 2019, Limerick, Ireland.
- Razvan Stanica co-organized a workshop on New Architectures and Services for Autonomous and Flexible Cellular Networks, within the Jacques Cartier Meetings organised in November in Montreal (Canada).

10.1.1.2. Member of the Organizing Committees

- Oana Iova was on the Organizing Committee of the first Low Power and Wide Area Networks Days (GDR RSD), 11-12 July 2019, Lyon.
- Hervé Rivano was on the Organizing Committee of the first Low Power and Wide Area Networks Days (GDR RSD), 11-12 July 2019, Lyon.
- Fabrice Valois was on the Organizing Committee of the first Low Power and Wide Area Networks Days (GDR RSD), 11-12 July 2019, Lyon.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Oana Iova was program co-chair of CoRes 2019: 4ème Rencontre Francophone sur la Conception de Protocoles, l'Évaluation de Performance et l'Expérimentation des Réseaux de Communication, June 3-4, 2019, Toulouse (France).

10.1.2.2. Member of the Conference Program Committees

- Oana Iova was in the TPC of the following conferences: IAUV, UrbCom, IoT-HPC, ACM SIG-COMM AINTEC, AdHoc-Now, EWSN, IEEE DIPI.
- Razvan Stanica was in the TPC of the following conferences: IEEE ICC, IEEE GlobeCom, IEEE CCNC, IEEE WCNC, IEEE PIMRC, IFIP WD, ICIN, ISNCC, GIoT.
- Fabrice Valois was in the TPC of the following conferences: IEEE Globecom, IEEE ICC, IEEE ICT, IEEE WCNC, WiSARN.

10.1.2.3. Reviewer

- Oana Iova was a reviewer for the following conference: IEEE INFOCOM 2019 (demo and posters).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Fabrice Valois is associated editor for Annals of Telecommunications (IF: 1.412).

10.1.3.2. Reviewer - Reviewing Activities

- Walid Bechkit was reviewer for the following journals: Elsevier Ad hoc Networks.

- Oana Iova was reviewer for the following journals: IEEE Transactions on Mobile Computing, Elsevier Sustainable Computing, Informatics and Systems.
- Razvan Stanica was a reviewer for the following journals: IEEE Transactions on Mobile Computing, IEEE Communication Letters, Computer Networks, Ad-Hoc Networks, Wireless Networks, IEEE Transactions on Network and Service Management, IEEE Access, Mobile Information Systems.

10.1.4. Invited Talks

- Hervé Rivano was invited speaker IMERIR, Perpignan, France.
- Hervé Rivano was invited speaker Forum Numerica - Learning Center, Campus SophiaTech, France.
- Hervé Rivano was invited speaker Institut d'Automne en Intelligence Artificielle, GDR IA, Lyon, France.
- Hervé Rivano was invited speaker Les Entretiens Jacques Cartier, Montréal, Canada.
- Hervé Rivano was invited speaker IEEE Societal Automation, Krakow, Poland.
- Hervé Rivano was chair of the panelist A l'école de l'anthropocène, Lyon, France.
- Fabrice Valois was invited speaker IEEE Canada Distinguished Lecture, University of Waterloo, Canada.
- Fabrice Valois was invited speaker Les Entretiens Jacques Cartier, Montréal, Canada.
- Fabrice Valois was invited speaker Mois des Cultures Numériques, Institut Français, Sfax, Tunisie.

10.1.5. Leadership within the Scientific Community

- Walid Bechkit is a nominated member in the scientific committee of the Fédération d'Informatique de Lyon (FR 2000 CNRS).
- Oana Iova is the scientific leader of the steering committee of the LPWAN Days (GDR RSD).
- Hervé Rivano is member of the steering committee of the ResCom axis of the RSD CNRS GdR.
- Hervé Rivano is member ot the steering committee of Ecole Urbaine de Lyon (PIA Institut Convergence), in charge of Smart and Learning Cities.
- Hervé Rivano was co-representative of the Labex IMU at the Smart City Expo World Congres (Barcelona).
- Fabrice Valois is a member of the Scientific Council of the LIMOS-UMR6158 laboratory, Clermont Ferrand.
- Fabrice Valois is member of the Scientific Council of the Labex IMU (Intelligence des Mondes Urbains).

10.1.6. Scientific Expertise

- Hervé Rivano is member of the Scientific Committee of the Digital League Regional Cluster.
- Fabrice Valois was a member in the recruitment committee of an Associate Professor in Computer Science at Université de Clermont Auvergne.
- Fabrice Valois was a member in two recruitment committees of Associate Professors in Computer Science at Université de Cergy-Pontoise.

10.1.7. Research Administration

- Walid Bechkit is responsible for seminar organization and scientific animation within the CITI laboratory.
- Khaled Boussetta is member of the steering committee of the MathStic federation at University Paris 13.
- Hervé Rivano is president of the CITI laboratory council.

- Razvan Stanica is the CITI laboratory correspondent with the Labex IMU.
- Razvan Stanica is member of the steering committee of the Volvo Chaire at INSA Lyon.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: Walid Bechkit, IP Networks, 30h, L3, Telecom. Dpt. INSA Lyon.

Licence: Fabrice Valois, IP Networks, 36h, L3, Telecom. Dpt. INSA Lyon.

Licence: Fabrice Valois, Medium Access Control, 54h, L3, Telecom. Dpt. INSA Lyon.

Licence: Fabrice Valois, Basic networking, 20h, L3, IST / Telecom. Dpt. INSA Lyon (lectures given in english).

Licence: Oana Iova, Network and System Programming, 108h, L3, Telecom. Dpt. INSA Lyon.

Licence: Oana Iova, Introduction to research, 20h, L3, Telecom. Dpt. INSA Lyon.

Licence: Oana Iova, Smart city: networking challenges, 8h, L3, Smart Program, INSA Lyon (lectures given in english).

Licence: Oana Iova, Internet of connected things, 3h, L3, Innov Program, INSA Lyon (lectures given in english).

Licence: Hervé Rivano, Algorithms and programming, 165h, L1 - L2, INSA Lyon.

Licence: Hervé Rivano, Sensors data engineering project, 34h, L2, INSA Lyon.

Licence: Hervé Rivano, Programming robot control, 20h, L2, INSA Lyon.

Licence: Walid Bechkit, Introduction to wireless sensor networks, 50h, L2, INSA Lyon.

Master: Walid Bechkit, Performance evaluation of telecom networks, 100h, M1, Telecom. Dpt. INSA Lyon.

Master: Walid Bechkit, Cryptography and communication security, 30h, M1, Telecom. Dpt., INSA Lyon.

Master: Walid Bechkit, Wireless networks: architecture and security, 30h, M2, INSA Lyon.

Master: Master : Walid Bechkit, Network Acces Control, 6h, M2, Telecom. Dpt. INSA Lyon.

Master: Oana Iova, Network Routing Protocols, 66h, M1, Telecom. Dpt. INSA Lyon.

Master: Oana Iova, Long Range Networks, 10h , M2, Telecom. Dpt. INSA Lyon.

Master: Oana Iova, IoT technical project, 8h, M2, Telecom. Dpt. INSA Lyon.

Master: Hervé Rivano, Smart Cities and IoT, 44h, M2, Telecom. Dpt. INSA Lyon.

Master: Hervé Rivano, Smart Cities, Master Cities, Environment and Urbanism, University of Lyon.

Master: Razvan Stanica, Mobile Networks, 30h, M1, Telecom. Dpt. INSA Lyon.

Master: Razvan Stanica, Network Science, 10h, M2, Telecom. Dpt. INSA Lyon.

MOOC: Hervé Rivano, Razvan Stanica, Fabrice Valois, Connectez à Internet vos Objets Intelligents, production started in the context of the ANR Connect-IO project.

Walid Bechkit is in charge of the admission service of the Telecommunication department at INSA Lyon.

Walid Bechkit is an elected member of the Telecommunication department council at INSA Lyon.

Walid Bechkit is the head of the networking teaching team in the Telecommunications department at INSA Lyon, coordinating all the courses in the networking domain.

Khaled Boussetta is the studies director of Apprenticeship Education Program Specialty in Computer Science and Network at Sup'Galilée Engineering School (University Paris 13).

Hervé Rivano is responsible for the coordination of all courses in the Smart Cities and IoT option at the INSA Lyon Telecommunications department.

Hervé Rivano is responsible of the Smart program (international teaching program with Tohoku University and Tokyo University) about Smart Cities.

Hervé Rivano is responsible of the IoT specialization of the Innov program (INSA Lyon and US students).

Hervé Rivano is referent DSI in the FIMI Dpt., INSA Lyon.

Razvan Stanica is responsible of the research option at the Telecommunications department of INSA Lyon.

Razvan Stanica is vice dean of the Telecommunications department of INSA Lyon, in charge of education related affairs.

10.2.2. Supervision

PhD in progress: Abderrahman Ben Khalifa, Cognitive mechanisms for IoT networks, since 11/2016. Advisors: Hervé Rivano, Razvan Stanica.

PhD in progress : Rodrigue Domga Komguem, Autonomous WSN architectures for road traffic applications, since 11/2012. Advisors: Razvan Stanica, Maurice Tchuente (Univ. Yaoundé, Cameroun), Fabrice Valois.

PhD in progress: Mohamed Anis Fekih, Urban pollution using wireless sensor networks, since 11/2018. Advisors: Walid Bechkit, Hervé Rivano.

PhD in progress: Kawtar Lasri, Data collection and distributed spatial coordination in LPWAN networks, since 01/2019. Advisors: Oana Iova, Fabrice Valois.

PhD in progress: Ichrak Mokhtari, Spatio-temporal analysis of pollution data from low cost sensors, since 11/2019. Advisors: Walid Bechkit, Hervé Rivano.

PhD in progress: Mihai Popescu, Connectivity constrained mobility in fleets of robots, since 11/2015. Advisors: Olivier Simonin (Inria CHROMA), Anne Spalanzanni (Inria CHROMA), Fabrice Valois.

PhD in progress: Romain Pujol, Data collection in dynamic wireless networks, since 11/2018. Advisors: Razvan Stanica, Fabrice Valois.

PhD in progress: Solohaja Rabenjamnia, Data analysis of cellular trafic, since 11/2018. Advisors: Hervé Rivano, Razvan Stanica.

10.2.3. Juries

- Hervé Rivano was a reviewer in the following PhD defense committees:
  - G. Bu, Fiabilité, sécurité et vie privée dans les WBAN, LIP6, Sorbonne Université
  - B. Grozev, Conférences vidéos WebRTC à routage optimisé, Icube, Université de Strasbourg
- Hervé Rivano was a member in the following PhD defense committees:
  - M. Smache, La sécurité des réseaux déterministe de l'Internet industriel des objets (IIoT), CEA Leti, Mines Saint Etienne
  - H. Mazouzi, Algorithmes pour le déchargement de tâches sur serveurs de périphérie mobile, L2TI, Université de Paris Nord
- Razvan Stanica was a member in the following PhD defense committee:
  - M. M. Merah, Conception et réalisation d'un lien Light-Fidelity multi-utilisateur en intérieur, LISV, Université de Versailles Saint Quentin en Yvelines
- Fabrice Valois was a reviewer in the following PhD defense committee:
  - H. Mroue, Développement de réseaux radio d'objets connectés pour les Villes Intelligentes : améioration de la Qualité de Service du réseau LoRa, IETR, Université de Nantes
- Fabrice Valois was a member in the following PhD defense committees:

–   R. T. Hermeto, Standard Improvements and Predictable Performance for Industrial Internet of Things in Indoor Deployments, ICube, Université de Strasbourg

–   H. Chour, Full-Duplex Device-to-Device Communication for 5G Network, IETR, Centrale Supélec

10.3. Popularization

- Hervé Rivano, Atelier de recherche participative sur la mesure de la qualité de l'air, Ecole Urbaine de Lyon, France.

- Hervé Rivano, Développement et expérimentation du kit pédagogique *Ca va chauffer*, Ecole Jules Guesde, Villeurbanne, France.

- Hervé Rivano, Aterlier autour du kit pédagogique *Ca va chauffer*, Super Demain, Métropole de Lyon.

10.3.1. Articles and contents

- Hervé Rivano is co-author of the blog post *Représenter l'intangible : les défis de la visualisation des données numériques environnementales. Montrer la pollution de l'air, le cas d'Air To Go*https://medium.com/anthropocene2050/

- Hervé Rivano is organizer and moderator of the podcast *Quelle ville intelligente est possible ?*, https://www.sondekla.com/user/event/10011

- Hervé Rivano is moderator of the podcast *Anthropocène et outils numériques*, https://www.sondekla.com/user/event/9805

10.3.2. Interventions

- Walid Bechkit was invited speaker about *3M'Air Mesures citoyennes Mobiles et Modélisation: qualité de l'air et îlots de chaleur à Lyon*, Colloque National Capteurs et Sciences Participatives, Paris, 2019.

- Oana Iova, Hervé Rivano and Fabrice Valois was involved in *Les rêveries lumineuses de Léonard*, https://popsciences.universite-lyon.fr/agenda/les-reveries-lumineuses-de-leonard-fete-des-lumieres-2019/, contribution de l'Ecole Urbaine de Lyon pour l'Université de Lyon, Fête des Lumières, 2019.

ALPINES Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Organization of the kick-off meeting of ERC Synergy project EMC2 by E. Cances, L. Grigori, Y. Maday, and J. P. Piquemal. For more details see the website.
- Organization of Horizon Maths 2019 day on Mathematics and Chemistry by E. Cances, L. Grigori, Y. Maday, and J. P. Piquemal, december 3 2019. For more details see the website.

10.1.2. Scientific Events: Selection

- Gene Golub Summer school on High Performance Data Analytics, June 17-28, 2019 in Aussois, France. Co-organized by L. Grigori with M. Knepley, O. Schenk, R. Vuduc. Sponsored by SIAM through an endowment from the estate of Gene Golub.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Laura Grigori, March 2014 – current. Member of the editorial board for the SIAM book series Software, Environments and Tools. See http://bookstore.siam.org/software-environments-and-tools/.
- Laura Grigori, January 2016 – current. Associate Editor, SIAM Journal on Scientific Computing.
- Laura Grigori, January 2017 – current. Associate Editor, SIAM Journal on Matrix Analysis and Applications.
- Laura Grigori, January 2016 – current. Editorial board, Numerical linear algebra with applications Journal, Wiley.
- Laura Grigori, October 2019 – current. Editorial board, Calcolo Journal, Springer.
- Frédéric Nataf, January 2015 – current, Editorial board, Journal of Numerical Mathematics, de Gruyter.

10.1.4. Invited Talks

- Laura Grigori was
  - Invited speaker, Advanced Solvers for modern Architectures Symposium, November 2019, Munster Germany.
  - Keynote speaker, workshop *Parallel solution methods for systems arising from PDEs*, September 2019, CIRM France.
  - Invited plenary speaker, SIAM Conference on Computational Science and Engineering (CSE19), February 2019, Washington USA, http://www.siam.org/meetings/cse19/.
- S. Hirstoaga gave a talk at the seminar of Laboratoire Jacques-Louis Lions, March 2019, Paris.
- Frédéric Nataf was invited speaker at RMR 2019: Rencontres Mathématiques de Rouen 2019, juin 2019, Rouen, France.
- Frédéric Hecht was
  - invited speaker at HPCSE 2019: HIGH PERFORMANCE COMPUTING IN SCIENCE AND ENGINEERING, University of Ostrava, Czech.

- invited speaker at RMR 2019: Rencontres Mathématiques de Rouen 2019, juin 2019, Rouen, France.
- invited speaker at COUPLED 2019: june 2019, Sigtes, Spain.
- invited speaker, workshop *Parallel solution methods for systems arising from PDEs*, September 2019, CIRM France.

10.1.5. Leadership within the Scientific Community

- Laura Grigori, member elected of SIAM Council, January 2018 - December 2020, the committee supervising the scientific activities of SIAM. Nominated by a Committee and elected by the members of SIAM.
- Laura Grigori, member of the PRACE (Partnership for Advanced Computing in Europe) Scientific Steering Committee, September 2016 - current.
- Laura Grigori and Frédéric Hecht are coordinators of the High Performance in Scientific Computing Major of second year of Mathematics and Applications Master, Sorbonne University.

10.1.6. Scientific Expertise

- Laura Grigori: November 2015 - current, expert to the Scientific Commission of IFPEN (French Petroleum Institute). Evaluation of research programs, PhD theses, work representing a total of 5 days per year.

10.1.7. Research Administration

- Laura Grigori was vice-president of the committee CE46 of ANR, September 2017 - July 2019.
- Frédéric Nataf was president of the committee "Mathématiques et leurs interactions" (CE40) at ANR, September 2016 - August 2019.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master 1: Xavier Claeys, Initiation to C++, 36 hrs of programming tutorials in C++, SU.

Master 1: Xavier Claeys, Computational Linear Algebra, 32 hrs of lectures, SU.

Master 1: Xavier Claeys, Approximation of PDEs, 24 hrs of programming tutorials in Python, SU.

Master 2: Laura Grigori, Winter 2019, Participation in the course on High Performance Computing given at Sorbonne University, Computer Science, intervention for 8 hours per year.

Master 2: Laura Grigori, Course on *High performance computing for numerical methods and data analysis*, https://who.rocq.inria.fr/Laura.Grigori/TeachingDocs/UPMC_Master2/HPC_MN_DA.html, Master 2nd year, Mathematics & Applications, Sorbonne University, 24 hours per year.

Licence 1: S. Hirstoaga, analysis and matrix calculus, 24 HETD, INSEP, Sorbonne University.

Master 1: Frédéric Hecht, Initiation au C++, 24hrs, SU, France

Master 2: Frédéric Hecht, Des EDP à leur résolution par la méthode des éléments finis (MEF), 36hrs, M2, SU, France

Master 2: Frédéric Hecht, Numerical methods for fluid mechanics, 10hrs, SU, France

Master 2: Frédéric Hecht, Calcul scientifique 3 / projet industriel FreeFem++, 28hrs, M2, SU, France

Master 2: Frédéric Hecht, Ingénierie 1 / Logiciel pour la simulation (FreeFem++), 21hrs, SU, France

Master 2: Frédéric Hecht, Ingénierie 2 / Projet collaboratif, 21hrs, SU, France

Cours CIMPA: Frédéric Hecht, Modélisation, Analyse mathématique et calcul scientifique dans la gestion des déchets ménagers , 12h, Kenitra, Maroc

Master 2: Frédéric Nataf, Course on Domain Decomposition Methods, Sorbonne University.

10.2.2. Supervision

PhD: Sebastien Cayrols, Minimizing communication for incomplete factorizations and low-rank approximations on large scale computers, Sorbonne Université, February 2019, adivsor Laura Grigori.

PhD: Zakariae Jorti, Fast solution of sparse linear systems with adaptive choice of preconditioners, Sorbonne University, September 2019, advisor Laura Grigori.

PhD: Olivier Tissot, Solving linear systems on massively parallel architectures, Sorbonne University, January 2019, advisor Laura Grigori.

PhD: Julien Coulet, Sorbonne University, Méthode des Eléments Virtuels pour le calcul de la dé-formation mécanique couplée aux écoulements en milieux poreux, October 2019, advisors Frédéric Nataf, Vivette Girault (SU), Isabelle Faille (IFPEN) and Nicolas Guy (IFPEN).

PhD: Rim El Dbaissy, Sorbonne University, Discrétisation du problème de couplage instationnaire des équations de Navier- Stokes avec l'équation de la chaleur, Mars 2019, advisors Tony Sayah, Frédéric Hecht.

PhD in progress: Matthias Beaupere, since October 2019 (funded by ERC Synergy EMC2), advisor Laura Grigori.

PhD in progress: Igor Chollet, since October 2017 (funded by ICSD), advisors Xavier Claeys, Pierre Fortin, Laura Grigori.

PhD in progress: Thibault Cimic, since October 2017 (funded by ANR B3DCMB), advisor Laura Grigori.

PhD in progress: Pierre Marchand, since October 2016 (funded by ANR NonLocalDD project), advisors Xavier Claeys and Frédéric Nataf.

PhD in progress: Thanh Van Nguyen, since November 2017 (funded by ANR CinePara), advisor Laura Grigori.

PhD in progress: Jeremy Weisman, since October 2019 (funded by ERC Synergy EMC2), advisors Laura Grigori and J. P. Piquemal.

PhD in progress: Houssam Houssein, since January 2018 (CIFRE, funded by Airthium), advisor Frédéric Hecht.

10.2.3. Juries

- Xavier Claeys was reviewer and member of the jury for the PhD thesis of Federica CAFORIO, defended at Université Paris-Saclay, on January the 24th 2019.
- Xavier Claeys was member of the jury for the PhD thesis of Yohannes Tjandrawidjaja, defended at Université Paris-Saclay on December the 17th 2019.
- Laura Grigori was a member of the jury of Phd defense of Oleg Balabanov, September 2019.
- Laura Grigori was president of the jury of the HDR habilitation of Sever Hirstoaga, Université de Strasbourg, April 2019.
- Laura Grigori was a member of the jury of HDR habilitation of Stéphanie Chaillat, Examinateur, ENSTA, March 2019.
- Laura Grigori was a member of the jury of Phd defense of Fabio Verbosio, USI Lugano, February 2019.
- Frédéric Hecht was president of the HDR defense of Mourad Ismail, 2019, LIPhy, Université Grenoble Alpes.
- Frédéric Hecht was president of the PhD defense of Alexandre This, 2019, Sorbonne University.
- Frédéric Hecht was president of the PhD defense of Zakariae Jorti, 2019, Sorbonne University.
- Frédéric Hecht was president of the PhD defense of Sebastien Cayrols, 2019, Sorbonne University.
- Frédéric Nataf was president of the PhD defense of Rim ALDBAISSY, 2019, Sorbonne University.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Laura Grigori was vice-president of the Evaluation Commission of Inria, March 2018 - August 2019.

<p style="text-align:center;color:red;font-weight:bold;font-size:1.3em;">AVALON Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

Eddy Caron

- served as Co-Chair of SPCLOUD 2019, July 15-19, 2019 Dublin, Ireland.
- served as Local Organizing Committee of SRDS 2019, October 1-4, 2019 Lyon. France.

Laurent Lefèvre was :

- Co-organizer of colloquium : "Atteindre les ODD en combinant leviers technologiques et computationnels, économie circulaire et transdisciplinarité. Mission impossible ?", with Centre Jacques Cartier, UQAM, Inria, GDS CNRS EcoInfo, UQAM, Montreal, Canada, November 4-5, 2019
- Co Special Session Organizer of Special Session on High Performance Computing Benchmarking and Optimization (HPBench 2019), during HPCS conference, Dublin, Ireland, July 15-19, 2019
- Co-organizer of GreenDays@Anglet : How people and machines can reduce their environmental impacts ?, Anglet, France, June 24-25, 2019

Christian Perez served as Awards Co-Chair of HPCS 2019, July 15-19, 2019 Dublin, Ireland.

9.1.1.2. Member of the Organizing Committees

Laurent Lefevre was member of the Organizing Committee of the TILECS Workshop (Grenoble, 3-4 Jul 2019).

Christian Perez was member of the Organizing Committee of the French Journées Calcul Données (Toulouse, 9-11 Oct 2019), and the TILECS Workshop (Grenoble, 3-4 Jul 2019).

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

E. Caron was member of the program committees of CLOSER'2019, Compas'19

C. Perez was member of the program committees of CCGRID'19, HPCS'19, ICPP'10, ParCo'19, SC'19, and Compas'19.

F. Suter served in the program committees of ICPP, CCGrid, e-science, ICA3PP, WORKS, and HeteroPar.

M. Dias de Assuncao was member of the program committees of CCGrid'19, UCC'19, and CloudCom'19.

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

E. Caron reviewed an article for IEEE Transactions on Sustainable Computing (TSUSC) and an article for IEEE Transactions on Parallel and Distributed Systems (TPDS)

C. Perez reviewed an article for Future Generation Computer Systems.

F. Suter reviewed articles for Future Generation Computer Systems.

M. Dias de Assuncao reviewed articles for Future Generation Computer Systems, IEEE Transactions on Parallel and Distributed Systems, Cluster Computing and Journal of Network and Computer Applications.

9.1.4. Invited Talks

- Laurent Lefèvre gave the following invited talks in 2019 :
  - "Impacts environnementaux du numérique: rien de bon pour la planète ! Comment aller vers plus d'efficacité et de sobriété dans la phase d'usage ?", Entretiens Jacques Cartier, Montreal, Canada, November 4, 2019
  - "Impacts énergétiques et environnementaux du numérique dans les environnements urbains",Journée scientifique sur L'énergie dans les environnements urbains, Montpellier, France, October 10, 2019
  - "Une brève histoire du Green IT (informatique verte) : espoirs, challenges, risques", Café Gourmand du LIP, ENS Lyon, France, October 8, 2019
  - "L'usage des TICs - Consommation, efficacité et proportionnalité des TICs : focus sur usages DCs/Net et quelques propositions venant de la recherche", ENSIMAG, Grenoble, October 4, 2019
  - "Le numérique et ses impacts: C'est bon pour la planète ?", Meetup IBM Ecologie du numérique: facture énergétique de l'IA, Lyon, France, October 1, 2019
  - "Impact du numérique: focus sur les consommations en phase d'usage - Faire plus avec moins: à la recherche de proportionnalité et d'efficacité énergétique en phase d'usage", ANF 2019 EcoInfo, Autrans, France, September 25, 2019
  - "Mesures et efficacité énergétique sur plate-forme expérimentale - The G5K Green Tour", TGIR Visit, Lyon, France, July 5, 2019
  - "Mesures et efficacité énergétique sur plate-forme expérimentale - The G5K Green Tour", with Georges Da Costa, TILECS Workshop, Grenoble, France, July 4, 2019
  - "Eco-design or data centres collapse : - environmental impact of digital - 3 scenarii - GreenIT challenges and role", Colloque "Les limites de la croissance de la smart city:espaces et énergies des infrastructures numériques", Ecole d'architecture de la ville et des territoires, Marne la Vallée, France, June 5, 2019
  - "Numérique et ses impacts: C'est bon pour la planète ? de la grenouille au colibri...", Lycée St Charles, Rillieux la Pape, France, April 5, 2019
  - "Faire plus avec moins: à la recherche de proportionnalité et d'efficacité énergétique en phase d'usage", Séminaire du Département Informatique de l'ENS de Lyon (SIESTE), Lyon, France, March 12, 2019
  - "Les impacts environnementaux du numérique/EcoInfo/Réflexions Grenobloises/EcoInfo++", with Sophie Quinton, Comité des Projets Inria Rhone-Alpes, Montbonnot, February 12, 2019

9.1.5. Scientific Expertise

C. Perez reviewed two projects for PHC programmes.

Olivier Glück is member of the CNU (Conseil National des Universités) section 27 (Computer Science). He participated to the 2019 "Qualifications" session and "Suivi de carriere" session.

9.1.6. Research Administration

Eddy Caron is Deputy Director in charge of call for projects, research transfert and international affairs since September 2017 for the LIP. He is co-leader of the Distributed system and HPC team of the FIL (Fédération Informatique de Lyon).

Olivier Glück is member of the "Conseil Académique" of Lyon 1 University and Lyon University.

Laurent Lefevre is a member of the executive board and the sites committee of the Grid'5000 Scientific Interest Group. He is the scientific leader of the Grid'5000 Lyon site. He is animator and co-chair of the transversal action on "Energy" of the French GDR RSD ("Réseaux et Systèmes Distribués"). He is member of the scientifc advisory board of the Digital League cluster (Région Rhone Alpes). He is elected member in the LIP laboratory council (ENS Lyon).

Christian Perez represents INRIA in the overview board of the France Grilles Scientific Interest Group. He is a member of the executive board and the sites committee of the Grid'5000 Scientific Interest Group and member of the executive board of the Silecs testbed. He is a member of the Inria Grenoble Rhône-Alpes Strategic Orientation Committee. He is in charge of exploring potential scientific collaborations between INRIA and SKA France.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: Eddy Caron, Projet 1, 48h, L3, ENS de Lyon. France.

Master: Eddy Caron, Projet Intégré, 42h, M1, ENS de Lyon. France.

Master: Eddy Caron, Système distribués, 30h, M1, ENS de Lyon. France.

Licence: Yves Caniou, Algorithmique programmation impérative initiation, 48h, niveau L1, Université Claude Bernard Lyon 1, France.

Licence: Yves Caniou, Pratique d'Unix, 4h, niveau L1, Université Claude Bernard Lyon 1, France.

Licence: Yves Caniou, Programmation Concurrente, 35h and Responsible of UE, niveau L3, Université Claude Bernard Lyon 1, France.

Licence: Yves Caniou, Projet Informatique, 6h, niveau L3, Université Claude Bernard Lyon 1, France.

Licence: Yves Caniou, Réseaux, 36h, niveau L3, Université Claude Bernard Lyon 1, France.

Licence, Yves Caniou, Responsable mission pédagogique particulière, 3h, L3, Université Claude Bernard Lyon 1, France.

Master: Yves Caniou, Projet pour l'Orientation en Master, 3h, niveau M1, Université Claude Bernard Lyon 1, France.

Master: Yves Caniou, Responsible of Master SRIV (Systèmes, Réseaux et Infrastructures Virtuelles), 30h, niveau M2, Université Claude Bernard Lyon 1, France.

Master: Yves Caniou, Projet Bibliographie et Certifications, 1.5h and Responsible of UE, niveau M2, Université Claude Bernard Lyon 1, France.

Master: Yves Caniou, Gestion et supervision d'un parc, 4.5h and Responsible of UE, niveau M2, Université Claude Bernard Lyon 1, France.

Master: Yves Caniou, Sécurité, 27h and Responsible of UE, niveau M2, Université Claude Bernard Lyon 1, France.

Master: Yves Caniou, Systèmes Avancés, 4.5h, niveau M2, Université Claude Bernard Lyon 1, France.

Master: Yves Caniou, Approfondissement Scientifique, 6h, niveau M2, Université Claude Bernard Lyon 1, France.

Master: Yves Caniou, Projet pour l'Orientation en Master, 3h, niveau M1, Université Claude Bernard Lyon 1, France.

Master: Yves Caniou, Responsible of alternance students, 42h, niveau M1, Université Claude Bernard Lyon 1, France.

Master: Laurent Lefèvre, Parallélisme, 12h, niveau M1, Université Lyon 1, France.

Master: Laurent Lefèvre, Réseaux avancés, 24h, niveau M2, IGA Casablanca, Morocco.

Licence: Olivier Glück, Licence pedagogical advisor, 30h, niveaux L1, L2, L3, Université Lyon 1, France.

Licence: Olivier Glück, Introduction Réseaux et Web, 54h, niveau L1, Université Lyon 1, France.

Licence: Olivier Glück, Bases de l'architecture pour la programmation, 23h, niveau L1, Université Lyon 1, France.

Licence: Olivier Glück, Algorithmique programmation impérative initiation, 56h, niveau L1, Université Lyon 1, France.

Licence: Olivier Glück, Réseaux, 2x70h, niveau L3, Université Lyon 1, France.

Master: Olivier Glück, Réseaux par la pratique, 10h, niveau M1, Université Lyon 1, France.

Master: Olivier Glück, Responsable of Master SRIV (Systèmes, Réseaux et Infrastructures Virtuelles) located at IGA Casablanca, 20h, niveau M2, IGA Casablanca, Maroc.

Master: Olivier Glück, Applications systèmes et réseaux, 30h, niveau M2, Université Lyon 1, France.

Master: Olivier Glück, Applications systèmes et réseaux, 24h, niveau M2, IGA Casablanca, Maroc.

Master: Olivier Glück, Administration des Systèmes et des Réseaux, 16h, niveau M2, Université Lyon 1, France.

Master: Olivier Glück, DIU Enseigner l'Informatique au Lycée, 50h, Formation continue, Université Lyon 1, France.

Licence : Frédéric Suter, Programmation Concurrente, 50.66, L3, Université Claude Bernard Lyon 1, France

Master : Frédéric Suter, DIU Enseigner l'Informatique au Lycée, 30, M2, Université Claude Bernard Lyon 1, France

9.2.2. Supervision

PhD: Alexandre Da Silva Veith: *Quality of Service Aware Mechanisms for (Re)Configuring Data Stream Processing Applications on Highly Distributed Infrastructure*, 23 sept. 2019, Labex MiLyon, Laurent Lefèvre (dir), Marcos Dias de Assunção (co-dir) (2016-2019).

PhD: Jad Darrous, *Geo-distributed storage for distributed Cloud*, 17 dec. 2019, Inria, Gilles Fedak (dir) until Aug. 2017 then Christian Perez (dir), Shadi Ibrahim (co-dir).

PhD in progress: Dorra Boughzala, *Simulating Energy Consumption of Continuum Computing between Heterogeneous Numerical Infrastructures in HPC*, IPL Hac-Specis Inria, Laurent Lefèvre (dir) , Martin Quinson and Anne-Cécile Orgerie (Myriads, Rennes, co-dir) (since december 2017).

PhD in progress: Aurélie Kong-Win-Chang: *Techniques de résilience pour l'ordonnancement de workflows sur plates-formes décentralisées (cloud computing) avec contraintes de sécurité*, Yves Robert (dir, ROMA, ÉNS-Lyon), Eddy Caron (co-dir) et Yves Caniou (co-dir).

PhD in progress: Arthur Chevalier, *Optimisation du placement des licences logiciel des fonctions réseau dans le Cloud pour un déploiement économique et efficace*, Eddy Caron (dir), Noëlle Baillon (co-dir, Orange) (since October 2017).

PhD in progress: Zeina Houmani, *A Data-driven microservices architecture for Deep Learning applications*, Eddy Caron (dir), Daniel Balouek-Thomert (Rutgers University) (since oct. 2018).

PhD pended: Aurélie Kong-Win-Chang: *Techniques de résilience pour l'ordonnancement de workflows sur plates-formes décentralisées (cloud computing) avec contraintes de sécurité*, Yves Robert (dir, ROMA, ÉNS-Lyon), Eddy Caron (co-dir) et Yves Caniou (co-dir) (since september 2016).

PhD in progress: Felipe Rodrigo De Souza, *Networking Provisioning Algorithms for Highly Distributed Data Stream Processing*, École Doctorale, Eddy Caron (dir), Marcos Dias de Assunção (co-dir) (since October 2017).

PhD in progress: Laurent Turpin,*Mastering Code Variation and Architecture Evolution for HPC application*, October 2019, Christian Perez (Inria, AVALON team, dir), Jonathan Rouzaud-Cornabas (INSA, Beagle team, co-dir) and Thierry Gautier (Inria, AVALON team, co-dir).

PhD in progress: Idriss Daoudi,*Simulating OpenMP program*, October 2018, Olivier Aumage (Inria, Storm team, Bordeaux, dir) and Thierry Gautier (Inria, AVALON team, co-dir).

PhD in progress: Vo Quoc Bao Bui, *Extended Para-Virtualization*, 2017, Alain Tchana (dir), Daniel Hagimont (INPT, co-dir)

PhD in progress: Barbe Thystere Mvondo Djob, *Improvement of the privileged domain in virtualized systems*, 1 fev 2018, Alain Tchana (dir), Noel De Palma (UGA, co-dir)

PhD in progress: Celestine Stella Ndonga Bitchebe, *Hardware features for virtualization*, 1 mars 2019, Alain Tchana (dir).

PhD in progress: Patrick Lavoisier Wapet, *Illegitimate app detection in mobile phones* , 1 oct. 2017, Alain Tchana (dir), Daniel Hagimont (INPT, co-dir).

9.2.3. *Juries*

Thierry Gautier was examiner of the PhD defense committee of Andrés Antón Rey Villaverde, Universidad Complutense de Madrid, Spain (November 22, 2019).

Laurent Lefèvre was

- examiner of the PhD defense of Fatma Ezzahra SALEM : "Management of Advanced Sleep Modes for Energy-Efficient 5G Networks", Institut Polytechnique de Paris, Telecom Paris Sud, December 20, 2019
- reviewer of the PhD of Maroua Haddad : "Sizing and management of a hybrid renewable energy system for data centers supply", University of Franche-Comté, November 28, 2019
- examiner of the PhD defense of Léo Grange : "Datacenter Management for on-site Intermittent and Uncertain Renewable Energy Sources", IRIT, Toulouse, October 3, 2019
- president of the PhD defense committee and examiner of of the PhD defense of Silvina Caino Lores : "On the Convergence of Big Data Analytics and High-Performance Computing: A Novel Approach for Runtime Interoperability", Universidad Carlos III de Madrid, Spain, July 8, 2019
- examiner of the PhD defense of Chaopeng Guo : "Energy-efficient Resource Provisioning for Cloud Database", IRIT, Toulouse, June 14, 2019
- reviewer of the PhD of Christian Heinrich : "Modeling, Prediction and Optimization of Energy Consumption of MPI Applications using SimGrid", Laboratoire Informatique de Grenoble, May 21, 2019

Christian Perez was

- president of the HdR defense committee of Alexandru Costan, ENS Rennes, France, March 14th, 2019.
- reviewer and member of the HdR defense committee of Xavier Etchevers, Université Grenoble Alpes, France, Nov 29th, 2019.
- reviewer and member of the HdR defense committee of Guillaume Mercier, Université de Bordeaux, France, Dec 4th, 2019.
- reviewer and member of the PhD defense committee of Ksander Ejjaaouani, Université de Strasbourg, France, Oct 25th, 2019.
- reviewer and member of the PhD defense committee of Georgios Christodoulis, Université Grenoble Alpes, France, Dec 5th, 2019.
- member of the PhD defense committee of Michael Mercier, Université Grenoble Alpes, France, July 1st, 2019.

- member of the PhD defense committee of Mohammad Mahdi Bazm, Université de Nantes, France, July 8th, 2019.

- member of the PhD defense committee of Cedric Deffo Sikounmo, Université Grenoble Alpes, France, Dec 18th, 2019.

- member of the final PhD committee for 7 PhD students of the University of Pisa (Italy), March 8th, 2019: Giovanna Broccia, Giulio Masetti, Luca Pedrelli, Giulio Ermanno Pibiri, Marco Ponza, Manuele Sabbadin, and Massimo Torquati,

Frédéric Suter was president of the PhD defense committee of Michael Mercier, Université Grenoble Alpes, France, July 1st, 2019.

9.3. Popularization

Yves Caniou est co-fondateur et co-organisateur du Campus du Libre, un événement autour du Libre dont l'objectif est de partager différents aspects du libre et des communs, allant par exemple du logiciel libre (Linux, Firefox, *etc.*) aux espaces communs gérés collaborativement (Wikipedia, OpenStreetMap).
La 2e édition s'est déroulée la journée du samedi 23 novembre 2019.

9.3.1. Articles and contents

- Interviews in order to popularize
  – Laurent Lefèvre was interviewed for the following dissemination media:
    * "En 2025, le numérique pourrait polluer autant que l'automobile", Le guide MAG2lyon du Développement Durable, December 2019
    * Radio show "Le numérique et ses impacts", Radio Fréquence Paris Plurielle, December 20, 2019
    * "L'insoutenable croissance du numérique", Alternatives Economiques, December 19, 2019
    * "Le streaming en expansion, son empreinte écologique aussi", Agence France Presse Dossier, October 28, 2019 - Reprint in Le Soleil, La Presse and le Quotidien (Canada, 28/10/2019), L'écho (France, 28/10/2019), Sciences et Avenir (France, 28/10/2019), L'OBS (France, 28/10/2019), Ouest France (France, 28/10/2019), Le Progrès (France 18/11/2019), DerStandard (Germany, 1/11/2019, "Gratis und ohne Anmeldung: Videostreaming-Dienst Apple TV+ gestartet"), Tierwelt (Germany, 3/11/2019, "STREAMING UND CO2 - Serienjunkies als Klimasunder")
    * "Mail, streaming, cloud... 20 gestes pour réduire sa pollution numérique", Business Insider France, October 29, 2019
    * Radio show "Le téléphone sonne", France Inter, August 16, 2019
    * "Guide Consommation Responsable - 3 gestes pour adopter une consommation numérique responsable", Institut National de la Consommation (INC), May 29, 2019
    * "Stocker trop de photos et de mails crée aussi de la pollution", Journal de Saone et Loire, after the Festival sans Decoder of Dompierre les Ormes, May 21, 2019
    * "Pollution numérique : comment réduire ses effets au quotidien ?", TV5 Monde, January 18, 2019

9.3.2. Education

- Yves Caniou is responsible of the LPI Certification at Université Claude Bernard Lyon 1. Further discussions are in progress concerning the proposed tools and redaction of courses/questions.

- Olivier Glück was in charge of one course in DIU Enseigner l'Informatique au Lycée, 50h, Formation continue, Université Lyon 1, France.

9.3.3. Panels

- Laurent Lefèvre was invited in the following panels in 2019 :
    - The "Empreinte écologique du numérique - Ecological footprint of digital world", Festival sans Decoder, Dompierre les Ormes, May 19, 2019
    - The "Energie numérique: ennemie ou alliée de l'écologie", Ateliers Sciences et Citoyens, Les rencontres du CNRS, Poitiers, April 2, 2019

<h2 style="text-align:center;color:red;">COAST Project-Team</h2>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Member of the Conference Program Committees

- Khalid Benali was a PC member of WorldCIST (World Conference on Information Systems and Technologies) 2019, MEDES (11th International Conference on Management of Digital EcoSystems) 2019, ICCCI (11th International Conference on Computational Collective Intelligence) 2019, CEISEE (15th China-Europe International Symposium on Software Engineering Education) 2019, I3E (IFIP Conference on e-Business, e-Services and e-Society) 2019, INFORSID (INFormatique des ORganisations et Systèmes d'Information et de Décision) 2019, ISKO-Maghreb (8th. Edition of the International Symposium on: « Digital Sciences: impacts and challenges on Knowledge Organization. ») 2019, and SysCoBIoTS (4th International Conference on Systems of Collaboration, Big Data, Internet of Things and Security), 2019.

- Claudia-Lavinia Ignat was a PC member of ECSCW (European Conference on Computer-Supported Cooperative Work: The International venue on Practice-centred computing and the Design of cooperation technologies) 2019, CDVE (International Conference on Cooperative Design, Visualization and Engineering) 2019 and 2020, CollabTech (International Conference on Collaboration Technologies and Social Computing) 2019

- Olivier Perrin was a PC member of the conference program committee of ICSOC (International Conference on Services Oriented Computing) 2019, CoopIS (27h International Conference on Cooperative Information Systems) 2019, and IEEE ATC-19 (16th IEEE International Conference on Advanced and Trusted Computing).

- François Charoy was a PC Member of ICEBE (International Conference on Business Engineering) 2019, ICSOC 2019, IEEE International Conference on Business Information Systems, ISCRAM 2019, and of several workshops.

- Claude Godart is a member of the editorial board of IEEE transaction on Service Computing. In 2019, he was a PC member of BPMDS (Business Process Modeling, Development and Support), EDOC (The enterprise computing conference), ICSOC (International Conference on Services Computing), ICWS (IEEE International Conference on Web Services), SCC (IEEE International Conference on Services Computing)and WISE (Web Information Systems Engineering) conferences.

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- Claudia-Lavinia Ignat is an Associate editor for the Journal of Computer Supported Cooperative Work (JCSCW) since 2011 and is Member of Editorial Board for the journal track of ECSCW conference since 2019

- François Charoy is a member of the editorial board of Service Oriented Computing and Applications (Springer)

10.1.2.2. Reviewer - Reviewing Activities

- Claudia-Lavinia Ignat reviewed papers for International Journal of Cooperative Information Systems

- Olivier Perrin reviewed papers for Elsevier Information Systems and Spring SoSyM (Software and Systems Modeling) journals.

- Francois Charoy reviewed papers for IEEE IoT, VLDB Journal and Interacting with Computers

10.1.3. Invited Talks

- In November 2019 Claudia-Lavinia Ignat was invited to give a talk at Inria Paris on "Large-scale trustworthy distributed collaborative systems"

10.1.4. Leadership within the Scientific Community

- François Charoy is steering committee member of European Society for Socially Embedded Technologies (EUSSET).
- Claudia-Lavinia Ignat was steering committee member of EUSSET until August 2019

10.1.5. Scientific Expertise

François Charoy was a member of the HCERES committee for the evaluation of the Laboratoire d'Informatique de Grenoble, Université de Grenoble Alpes

10.1.6. Research Administration

- Claudia-Lavinia Ignat is member of the Inria Evaluation Commission. She is a member of the Inria Nancy-Grand Est COMIPERS committee. She was a member of COST-GTRI commission. She is a member of the organisation committee of the Security Seminar at LORIA. Until March 2019 she was in charge of the European affairs and Delegate for International Relations for Inria Nancy-Grand Est. Until August 2019 she was member of Inria CAP Chercheurs commission. In 2019, she was a member of the CRCN recruitment jury at Inria Nancy-Grand Est and at Inria Saclay Ile de France. In 2019, she was a member of the national CRCN Inria recruitment jury and of the CRCN Inria admission jury.
- Gérald Oster is an elected member at AM2I scientist council of University of Lorraine
- Francois Charoy is an elected member of the CNU 27. He is a member of the board as assessor.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Permanent members of the Coast project-team are leading teachers in their respective institutions. They are responsible of lectures in disciplines like software engineering, database systems, object oriented programming and design, distributed systems, service computing and more advanced topics at all levels and in different of departments in the University. Most PhD Students have also teaching duties in the same institutions. Claudia-Lavinia Ignat teaches the lecture and the exercises on data replication and consistency at master level (M2 SIRAV) at University of Lorraine. As a whole, the Coast team accounts for more than 2500 hours of teaching. Members of the Coast team are also deeply involved in the pedagogical and administrative life of their departments.

- Olivier Perrin is responsible for the MIAGE of Nancy at the IDMC of University of Lorraine.
- Claude Godart is responsible for the Computer Science Department of the Polytech Nancy engineering school .
- Khalid Benali is responsible for the professional master degree speciality "Distributed Information Systems" of MIAGE and of its international branch in Morocco.
- François Charoy is responsible for the Software Engineering specialisation at the TELECOM Nancy Engineering School of University of Lorraine.
- Gérald Oster is responsible for the 3rd (last) year of study at the TELECOM Nancy Engineering School of University of Lorraine.

10.2.2. Supervision

- PhD : Guillaume Rosinoski, Elasticity of business processes execution, January 2019, François Charoy and Samir Youssef [2]
- PhD : Amina Ahmed Nacer, Contributions au déploiement sécurisé de processus métiers dans le cloud, Université de Lorraine et Université A. Mira (Bejaïa, Algérie), February 2019, Claude Godart, Samir Youcef and Abdelkamel Tari. [1]
- PhD : Hoang Long Nguyen, Blockchain based transparency system, December 2019, Claudia-Lavinia Ignat and Olivier Perrin
- PhD in progress: Hoai Le Nguyen, Study of group performance and behaviour in collaborative editing, started in September 2015, Claudia-Lavinia Ignat and François Charoy
- PhD in progress: Victorien Elvinger, Secured Replication for Peer-to-Peer Collaborative Infrastructures, started in October 2015, François Charoy and Gérald Oster
- PhD in progress: Abir Ismaïli-Alaoui, started in September 2016, Khalid Benali and Karim Baïna (Université Mohammed V, Rabat, Morocco)
- PhD in progress: Quentin Laporte-Chabasse, Federation of Organisations over Peer to Peer Collaborative Network, started in October 2016, François Charoy and Gérald Oster
- PhD in progress: Béatrice Linot, Trust in cooperative systems, started in November 2016, Jérome Dinet and François Charoy
- PhD in progress: Anis Ahmed Nacer, Safe Service Composition, started in March 2017, Olivier Perrin and François Charoy
- PhD in progress: Matthieu Nicolas, Optimisation of Replication Algorithms, started in October 2017, Olivier Perrin and Gérald Oster
- PhD in progress: Jean Philippe Eisenbarth, Securing the future blockchain-based security services, started in May 2019, Olivier Perrin and Thibault Cholez.
- PhD in progress: Clélie Amiot, Trust and Human/Chatbot collaboration, started in October 2019, Jérome Dinet and François Charoy

10.2.3. Juries

Coast members were members of the following PhD defence committees:
- Sina Namaki Arraghi, PhD,IMT Mines d'Albi-Carmaux, November 2019 (François Charoy, rapporteur)
- Nicolas Schnepf, PhD, Université de Lorraine, September 2019 (François Charoy, président)
- Suhrid Satyal, PhD, University of New South Wales, June 2019 (François Charoy, rapporteur)

<center>**COATI Project-Team**</center>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Member of the Conference Program Committees

- Christelle Caillouet :

    MiSARN'19: International Mission-Oriented Wireless Sensor, UAV and Robot Networking in conjunction with IEEE INFOCOM 2019.

    Wi-DroIT'19: 1st International Workshop on Wireless sensors and Drones in Internet of Things in conjunction with DCOSS 2019

    AlgoTel'19: 21ème Rencontre Francophone sur les Aspects Algorithmiques de Télécommunications, Saint Laurent de la Cabrerisse, France, June 4-7, 2019.

- David Coudert :

    ONDM'19: 23rd Conference on Optical Network Design and Management, Athens, Greece, May 13-16, 2019.

    IEEE ICC'19: IEEE International Conference on Communications, Shangai, China, May 20-24, 2019.

    IEEE Globecom'19: IEEE Global Communications Conference, Waikoloa, Hi, USA, December 9-13, 2019.

- Frédéric Giroire :

    Algotel'19: 21ème Rencontre Francophone sur les Aspects Algorithmiques de Télécommunications, Saint-Laurent-de-la-Cabrerisse, France, June 4-7, 2019.

- Frédéric Havet :

    LAGOS'19: X Latin and American Algorithms, Graphs and Optimization Symposium, Belo Horizonte, Brazil, June 2-7 2019.

    JGA'19: Journées Graphes et Algorithmes, Brussels, Belgium, November 15-17 2019.

- Joanna Moulierac :

    CoRes'19: Rencontres Francophones sur la Conception de Protocoles, l'Evaluation de Performance et l'Expérimentation des Réseaux de Communication, Saint Laurent de la Cabrerisse, France, June 3-4, 2019.

- Emanuele Natale :

    SPAA'19: 31st ACM Symposium on Parallelism in Algorithms and Architectures, Phoenix, AZ, USA, June 22-24, 2019 .

- Nicolas Nisse :

    CIAC'19: 11th International Conference on Algorithms and Complexity, Roma, Italy, May 27-29th, 2019.

    LAGOS'19: X Latin and American Algorithms, Graphs and Optimization Symposium, Belo Horizonte, Brazil, June 2-7, 2019.

    WG'19: 45th International Workshop on Graph-Theoretic Concepts in Computer Science, Vall de Núria, Catalonia, Spain, June 19-21, 2019.

10.1.1.2. Reviewer

Members of COATI have reviewed numerous manuscripts submitted to national and international conferences, including:

AlgoTel 2019, CoRes 2019, CSR 2019, EvoApplications 2019, IEEE ICC 2019, IPDPS 2019, IEEE Globecom 2019, LAGOS 2019, MFCS 2019, ONDM 2019, OPODIS 2019, IEEE PIMRC 2019, SPAA 2019, WG 2019.

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

Jean-Claude Bermond :

Computer Science Reviews, Discrete Mathematics, Discrete Applied Mathematics, Journal of Graph Theory, Journal of Interconnection Networks (Advisory Board), Mathématiques et Sciences Humaines, Networks, Parallel Processing Letters, the SIAM book series on Discrete Mathematics, Transactions on Network Optimization and Control, Algorithms and Applications.

Christelle Caillouet :

Guest Editor of the Special Issue "Optimization and Communication in UAV Networks" of MDPI Sensors Journal with Nathalie Mitton.

Alexandre Caminada :

Sensors — Open Access Journal, MDPI editor, Basel.

Soft Computing, Springer.

Journal of Traffic and Transportation Engineering, Elsevier.

Transactions on Mobile Computing, IEEE.

Transactions on Vehicular Technology, IEEE.

David Coudert :

Discrete Applied Mathematics (Elsevier).

Networks (Wiley).

Frédéric Giroire :

Journal of Interconnection Networks (World Scientific).

Frédéric Havet :

Discrete Mathematics and Theoretical Computer Science.

10.1.2.2. Reviewer - Reviewing Activities

Members of COATI have reviewed numerous manuscripts submitted to international journals, including:

IEEE Access, The American Mathematical Monthly, ACM Journal of Experimental Algorithmics (JEA), Elsevier Ad Hoc Networks, Ars Combinatorica, Computer Communications (ComCom) Computer Networks (COMNET), Computers & Operations Research (COR), Discrete Applied Mathematics (DAM), Discrete Mathematics, Discrete Mathematics and Theoretical Computer Science (DMTCS), Discussiones Mathematicae Graph Theory, European Journal of Combinatorics, European Journal of Operational Research (EJOR), Graphs and Combinatorics, Journal of Computer and System Sciences (JCSS), Journal of Combinatorial Theory, Series B (JCTB), IEEE/OSA Journal of Lightwave Technology (JLT), Opuscula Mathematica, SIAM Journal on Discrete Mathematics (SIDMA), IEEE Transactions on Mobile Computing (TOMC), IEEE/ACM Transactions on Networking (ToN), IEEE Transactions on Network and Service Management (TNSM), IEEE Transactions on Parallel and Distributed Systems (TPDS), IEEE Transaction on Services Computing, Theoretical Computer Science (TCS), Theory of Computing Systems (TOCS), Utilitas Mathematica.

10.1.3. Invited Talks

- Julien Bensmail :

  Sequential Metric Dimension (in trees). Meeting of IFCAM project, Indian Statistical Institute, Kolkata, India. February 2019.

  On the "quest" towards a directed variant of the 1-2-3 Conjecture. Seminar of the Department of Applied Mathematics, Northwestern Polytechnical University, Xi'an, China. October 2019.

  On the "quest" towards a directed variant of the 1-2-3 Conjecture. Seminar of the School of Mathematics and Statistics, Xidian University, Xi'an, China. September 2019.

  On partitioning graphs into connected subgraphs. Seminar of the Department of Applied Mathematics, Northwestern Polytechnical University, Xi'an, China. September 2019.

  A Decompositional Approach to the 1-2-3 Conjecture. Seminar of the Departamento de Matemática, Universidade Federal do Ceará, Fortaleza, Brazil. May 2019.

- David Coudert :

  Scientific objectives of ANR project MULTIMOD. Workshop "Complexité et algorithmes" of GDR IM, Roscoff, France, April 3-5, 2019.

  On the Flinders Hamiltonian Cycle Problem Challenge. Keynote speaker at "21ème Rencontres Francophones sur les Aspects Algorithmiques des Télécommunications" (AlgoTel 2019), Saint Laurent de la Cabrerisse, France, June 3-7, 2019.

  On the Flinders Hamiltonian Cycle Problem Challenge. Department of Computer Science & Software Engineering, Concordia University, Québec, Canada, July 25, 2019.

- Frédéric Giroire :

  Placement de services réseaux virtuels dans le cloud et au-delà. Journées Cloud https://www.irit.fr/journeescloud2019/, Toulouse, France. September, 12, 2019.

  Overview of Networking Challenges for the Placement of Cloud Services. Team seminar. Concordia University, Montréal, Canada.

  Sobriété énergétique des réseaux informatiques. Journée Scientifique "Concilier numérique et environnement ?" de l'Académie RISE / EUR DS4H de l'Université Côte d'Azur, France. December 2, 2019.

- Frédéric Havet :

  Unavoidability and universality of digraphs, WG 2019, Vall de Núria, Catalonia, Spain, June 2019.

  On the unavoidability of trees in tournaments, A tribute to Frédéric Maffray, Grenoble, France, September 2-4, 2019.

- Emanuele Natale :

  From Distributed Computing to Natural Algorithms and Beyond, invited talk at the 20th Italian Conference on Theoretical Computer Science (ICTCS'19) as a recipient of the IC-EATCS Young Researcher Award, Como, Italy, September 9-11, 2019.

- Nicolas Nisse :

  Recovery of disrupted airline operations, seminar team ParGO, Univ. federal do Ceara, Fortaleza, Brazil, May 10th, 2019

  Eternal domination in grid-like graphs, seminar of Northwestern Polytechnical University, Xi'an, China, Sept. 9th, 2019

  Localization GameS in graphs, seminar of Xidian University, Xi'an, China, Sept. 5th, 2019

10.1.4. Leadership within the Scientific Community

Alexandre Caminada :

Member of the administrative board of the Sophia Club Entreprise (club of more than 200 Sophia companies).

David Coudert :

Co-chair of *Pôle RESCOM of GDR RSD of CNRS* since 2017 and member of the steering committee since 2005.

Frédéric Giroire :

Member of the steering committee of *GT Energy of the GDR RSD of CNRS*.

Frédéric Havet :

Member of the steering committee of *GT Graphes of the GDR IM of CNRS*.

Nicolas Nisse :

Member of the "bureau" of the GT CoA of the GDR IM.

10.1.5. Scientific Expertise

- Jean-Claude Bermond :

  Expert for DRTT-MESR Crédit impôt recherche (CIR et agréments).

- Alexandre Caminada :

  Expert for HCERES evaluation of UMR5157 SAMOVAR (Services répartis, Architectures, MOdélisation, Validation, Administration des Réseaux), Telecom Sud Paris.

  Expert for CTI of ENSEA, graduate school on economy and statistics, Abidjan, Côte d'Ivoire.

- David Coudert :

  Expert for ANR

- Frédéric Havet :

  Expert for The Fund for Scientific Research - FNRS, Belgium.

- Nicolas Nisse :

  Expert for ESF (European Science Foundation).

  Expert for National Science Centre, OPUS (Poland)

10.1.6. Research Administration

- Jean-Claude Bermond :

  Responsible for the cooperation between Inria and Greece : setting of grants for master 2 students co-financed by Inria Sophia Antipolis Méditerranée and the French Embassy in Greece (in 2019 the grant was given to Foivos Fioravantes who did his internship in Coati) and getting financial support for internships via the Bodossakis Fundation.

- Christelle Caillouet :

  Elected member of CPRH (Comité Permanent de Ressources Humaines) University of Nice Sophia Antipolis;

  Elected member of I3S laboratory committee since December 2016.

- Alexandre Caminada :

  Head of the graduate school of engineering Polytech Nice Sophia which includes the EA7498 lab (Polytech Lab) of the French Ministry for Education, Research and Innovation, in charge of research in civil engineering and smart building at Université Côte d'Azur.

Member of the executive board of the Sophia Interdisciplinary Institute of Artificial Intelligence started in 2019.

Manager of the Chinese Scholarship Council PhD program for the Polytech network (70 Phd subjects proposed in 2019 by the 15 graduate schools).

Member of the selection committee of the tenure professor position nr552 (section 27, machine learning) at Université Côte d'Azur.

- David Coudert :

    Nominated member for Inria at the doctoral school STIC, since September 2017;

    Head (since December 2019) and member (since 2009) of the "Comité de Suivi Doctoral" of Inria;

    Nominated member for Inria at the steering committee of Academy 1 RISE (Networks, Information, Digital Society) of UCA^{JEDI} since February 2018;

    Nominated member for Inria at the steering committee of EUR DS4H since February 2018;

    Nominated member for Inria at the steering committee of Labec UCN@Sophia since February 2018;

    Member of the steering committee of seminar Forum Numerica of Academy 1 RISE of UCA^{JEDI} since 2018;

    Member of the "Bureau du comité des équipe-projets" of Inria research center Sophia Antipolis - Méditerranée since 2018.

- Frédéric Giroire :

    In charge of the internships of stream UbiNet of Master 2 IFI, UNS.

- Frédéric Havet :

    Head of COMRED team of I3S laboratory.

- Luc Hogie :

    Member of the CUMI (comité des utilisateurs des moyens informatiques) of Inria Sophia Antipolis Méditerranée;

    Elected member of I3S laboratory committee since December 2016.

- Joanna Moulierac :

    Member of selection committee MCF 775, IUT Arles, 2019.

- Nicolas Nisse :

    Elected member of "Comité de centre", Inria, Sophia Antipolis.

    Member of "Comité Scientifique et Pédagogique" (CSP) EUR DS4H.

- Michel Syska :

    Elected member of CPRH (Comité Permanent de Ressources Humaines) University of Nice Sophia Antipolis.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching Responsibilities

Julien Bensmail :

    2019: In charge of the internships of the 1st-year students of Département QLIO of IUT Nice Côte d'Azur.

    Since September 2019: Head of the Licence Professionnelle "Managements des Processus Logistiques" (MPL) of Université Nice-Sophia Antipolis.

Christelle Caillouet :

> Elected member of Conseil de département IUT Informatique since September 2017.

Alexandre Caminada :

> Head of the graduate school of engineering Polytech Nice Sophia (1500 master grade students, 100 faculty members, 50 staffs).

> Member of the executive board of the Polytech network, national network of public graduate school of engineering.

> Member of the executive board of Université Côte d'Azur.

Joanna Moulierac :

> "Directrice d'études" for the 1st-year students of "Département Informatique" of IUT Nice Côte d'Azur (since September 2017).

> Head of the "Conseil de Département Informatique" of IUT Nice Côte d'Azur (since September 2017).

10.2.2. Teaching

IUT: Julien Bensmail, *Recherche opérationnelle*, 90h ETD, Level L2, Département QLIO of IUT Nice Côte d'Azur, UNS, France;

IUT: Julien Bensmail, *Systèmes de gestion de bases de données*, 70h ETD, Level L2, Département QLIO of IUT Nice Côte d'Azur, UNS, France;

IUT: Julien Bensmail, *Sécurité des échanges de données inter-entreprises*, 30h ETD, Level LP, LP MPL of IUT Nice Côte d'Azur, UNS, France;

IUT: Christelle Caillouet, *Object Oriented Programming*, 150h ETD, Level L1, IUT Nice Côte d'Azur, UNS, France;

IUT: Christelle Caillouet, *Introduction to Networks*, 21h ETD, Level L1, IUT Nice Côte d'Azur, UNS, France;

IUT: Christelle Caillouet, *Algorithmics*, 21h ETD, Level L2, IUT Nice Côte d'Azur, UNS, France;

IUT: Adrien Gausseran, *Bases de la conception orientée objet*, 64h ETD, Level L1, IUT Nice Côte d'Azur, UNS, France;

IUT: Adrien Gausseran, *Introduction à l'algorithmique et à la programmation*, 6h ETD, Level L1, IUT Nice Côte d'Azur, UNS, France;

IUT: Luc Hogie, *Distributed programming*, 28h ETD, Level L2, IUT Nice Côte d'Azur, UNS, France;

IUT: Hicham Lesfari, *Réseaux d'opérateurs et réseaux d'accès*, 48h ETD, Level L2, IUT Nice Côte d'Azur, UNS, France;

IUT: Joanna Moulierac, *Introduction à l'algorithmique*, 30h ETD, Level L1, IUT Nice Côte d'Azur, UNS, France;

IUT: Joanna Moulierac, *Introduction aux Réseaux*, 36h ETD, Level L1, IUT Nice Côte d'Azur, UNS, France;

IUT: Joanna Moulierac, *Réseaux avancés*, 60h ETD, Level L2, IUT Nice Côte d'Azur, UNS, France;

IUT: Joanna Moulierac, *Compléments d'algorithmique*, 30h ETD, Level L2, IUT Nice Côte d'Azur, UNS, France;

IUT: Thibaud Trolliet, *Database*, 64h ETD, Level L1, IUT Nice Côte d'Azur, UNS, France;

IUT: Michel Syska, *Tutored Project: Introduction*, Level L1, IUT Nice Côte d'Azur, UNS, France;

IUT: Michel Syska, *Operating Systems: Advanced Programming*, 40h ETD, Level L2, IUT Nice Côte d'Azur, UNS, France;

IUT: Michel Syska, *Data Structures and Algorithms*, 44h ETD, Level L2, IUT Nice Côte d'Azur, UNS, France;

IUT: Michel Syska, *Introduction to Artificial Intelligence*, 40h ETD, Level L2, IUT Nice Côte d'Azur, UNS, France;

IUT: Michel Syska, *Algorithmics*, 52h ETD, Level L2, IUT Nice Côte d'Azur, UNS, France;

IUT: Michel Syska, *Web Security*, 13h ETD, Level L3, IUT Nice Côte d'Azur, UNS, France;

MPSI: Nicolas Nisse, *Option informatique, MPSI*, 24h ETD, classe préparatoire MPSI, Lycée International de Valbonne, France;

Licence: Frédéric Giroire, *Probability and statistics*, 50h ETD, 1st year (L3), Engineer School Polytech Nice;

Licence: Thi Viet Ha Nguyen, *TDs Theoretical computer science 2 (Formal langages and automata)*, 22h ETD, L3, Polytech Nice Sophia, France;

Master: Alexandre Caminada, *Radio location systems*, 20h ETD, Master 2 (in english), Polytech Nice Sophia, France

Master: Alexandre Caminada, *Artificial intelligence*, 40h ETD, Master 2 (in english), Polytech Nice Sophia, France

Master: Alexandre Caminada, Master grade student's internship supervision and assesment, 10h ETD, Master 2, Polytech Nice Sophia, France

Master: David Coudert, *Algorithms for Telecoms*, 36h ETD, M2, Université Nice Sophia Antipolis, France;

Master: Frédéric Giroire, *Graph Algorithms*, 15h ETD, Master 2, International Track Ubinet, Université Côte d'Azur, Nice;

Master: Frédéric Giroire, *Machine learning for networks*, 15h ETD, Master 2, International Track Ubinet, Université Côte d'Azur, Nice;

Master: Emanuele Natale, *Natural Distributed Algorithms*, 20h, Laurea Magistrale, University of Rome Tor Vergata, Italy.

Master: Nicolas Nisse, *Graphes*, 36 ETD, M1 Informatique, UNS/UCA, France;

Master: Nicolas Nisse, *Graphes avancés*, 36 ETD, M2 Informatique, UNS/UCA, France;

Master: Nicolas Nisse, *Algorithmes et Optimisation*, 15 ETD, M2 IFI, Parcours Ubinet, UNS/UCA, France;

Master: Nicolas Nisse, *Algorithmique*, 10 ETD, Formation professeurs de lycée, DIU, UCA, France;

Master: Stéphane Pérennes, *Algorithmes et complexité*, 10h ETD, M1 SI4, Polytech Nice Sophia, France

10.2.3. Supervision

10.2.3.1. PhD thesis

PhD: Brieuc Berruet, *Application des techniques de Machine Learning à la géolocalisation "indoor" des objets connectés dans le contexte de la future 5G*, doctorale school SPIM, Université de Belfort Franche Comté, December 17, 2019. Supervisor: Alexandre Caminada and Oumaya Baala (Orange).

PhD: Emilio Cruciani, *Simple Randomized Distributed Algorithms for Graph Clustering*, Gran Sasso Science Institute, December 19, 2018. Co-supervisors: Gianlorenzo D'Angelo (GSSI), Luca Becchetti (Sapienza University of Rome) and Emanuele Natale.

PhD: Mehdi Katranji, *Utilisation des méthodes de Machine Learning pour apprendre les modèles de mobilité humaine selon leurs attributs socio-démographiques et géographiques*, doctorale school SPIM, Université de Belfort Franche Comté, December 16, 2019. Supervisor: Alexandre Caminada and Fouad Hadjselem (Orange).

PhD: Fionn McInerney, *Domination and Identification Games in Graphs* [14], Université Côte d'Azur, July 8, 2019. Supervisor: Nicolas Nisse.

PhD: Andrea Tomassilli, *Towards Next Generation Networks with SDN and NFV* [15], June 24, 2019. Supervisors: Stéphane Pérennes and Frédéric Giroire.

PhD in progress: Ali Al Zoobi, *Algorithms for shared on demand public transportation system in the city*, since October 2018. Co-supervisors: David Coudert and Nicolas Nisse.

PhD in progress: Francesco D'Amore, *Dynamics for multi-agent system coordination in noisy and stochastic environments*, since October 2019. Co-supervisors: Emanuele Natale and Nicolas Nisse.

PhD in progress: Giuseppe Di Lena, *Resilience of virtualized networks*, since April 2018. Co-supervisors: Thierry Turletti (DIANA), Chidung Lac (Orange Labs Lannion) and Frédéric Giroire. CIFRE grant with Orange.

PhD in progress: Foivos Fioravantes, *Distinguishing labellings of graphs*, since October 2019. Co-supervisors: Julien Bensmail and Nicolas Nisse.

PhD in progress: Adrien Gausseran, *Optimization Algorithms for Network Slicing for 5G*, since October 2018. Supervisors: Joanna Moulierac and Nicolas Nisse.

PhD in progress: Hicham Lesfari, *Machine learning for dynamic network resource allocation*, since October 2019. Supervisor: Frédéric Giroire.

PhD in progress: Zhejiayu Ma, *Learning problem for the diffusion of multimedia contents*, since October 2018. Co-Supervisors: Guillaume Urvoy-Keller, Frédéric Giroire, Soufiane Rouiba (Easybroadcast, Nantes). CIFRE grant with Easybroadcast.

PhD in Progress: Thi-Viet-Ha Nguyen, *Graph Algorithms techniques for (low and high) resolution model of large protein assemblies.*, since October 2018. Co-supervisors: Frédéric Havet and Dorian Mazauric (ABS).

PhD in progress: Thibaud Trolliet, *Exploring Trust on Twitter*, since October 2017. Co-supervisors: Arnaud Legout (DIANA) and Frédéric Giroire.

10.2.3.2. Internships

Licence: Paul Bastide, *Density Estimation via Random Walks with Limited Communication*, ENS Rennes, France, from 20 May 2019 until 12 July 2019. Supervisor: Emanuele Natale.

Licence: Gabriel Djebbar, *Collapse and graphs problems*, SI3, Polytech Nice Sophia, France, from July 2018 until August 2018. Co-supervisors: Frédéric Havet and Dorian Mazauric (ABS).

Licence: Solal Gaudin, *Compromis temps-espace dans l'énumération des paires éloignés par distances décroissantes*, L3 ENS Cachan, France, from June 2019 until July 2019. Supervisor: David Coudert.

Licence: Emile Sorci, *Oblivious metric dimension*, L3, ENS Lyon, France, from June 2019 until July 2019. Co-supervisors: Julien Bensmail and Nicolas Nisse.

Licence: Zoé Varin, *Constrained matchings*, L3, ENS Lyon, France, from June 2019 until July 2019. Co-supervisors: Julien Bensmail and Nicolas Nisse.

Master 1 (tutorship): Nitha Sagar Jayanna, *Shortest Path in Multimodal Public Transportation Networks*, M1 Computer Science, Digital Systems for Humans (DS4H) Graduate school - Université Côte d'Azur, France, from October 2018 until June 2019. Supervisor: Michel Syska

Master 1 (tutorship): Shamprikta Mehreen, *Multi Objective Shortest Path Problem*, M1 Computer Science, Digital Systems for Humans (DS4H) Graduate school - Université Côte d'Azur, France, from October 2018 until June 2019. Supervisor: Michel Syska

Master 2 (TER): Haoran Ding, *Machine learning for dynamic network resource allocation*, Master 2 IFI, international track Ubinet, Université Côte d'Azur, France, from October 2019 until December 2019. Co-supervisors: Frédéric Giroire and Hicham Lesfari.

Master 2 (TER): Thomas Dissaux, *Computing treelength*, M2 IFI, Université Côte d'Azur, France, from October 2019 until December 2019. Supervisor: Nicolas Nisse

Master 2 (TER): Igor Dias Da Silva, *Computation and analysis of drone trajectories for effective surveillance and data collection*, Master IFI, Université Côte d'Azur, France, from November 2019 until December 2019. Supervisor: Christelle Caillouet.

Master 2 (TER): Arno Gobbin, *Computational Complexity of Puzzles and Games*, SI5 Polytech Nice Sophia, Université Côte d'Azur, France, from November 2019 until December 2019. Supervisor: Emanuele Natale

Master 2 (TER): Siwar Helaoui, *Distributed simulation of algorithms for the deployment of self-organized UAVs*, SI5 Polytech Nice Sophia, Université Côte d'Azur, France, from November 2019 until March 2020. Supervisor: Christelle Caillouet and David Coudert.

Master 2 (TER): Noueman Khalikine, *Algorithms for studying the evolution over time of the structure of social graphs*, stream Ubinet of M2 IFI, Université Côte d'Azur, France, from November 2019 until December 2019. Supervisor: David Coudert and Frédéric Giroire.

Master 2 (TER): Abdelkrim El Merss, *Algorithms for studying the evolution over time of the structure of social graphs*, stream Ubinet of M2 IFI, Université Côte d'Azur, France, from November 2019 until December 2019. Supervisor: David Coudert and Frédéric Giroire.

Master 2 (TER): Victor Tapissier, *Evolution over time of the structure of social graphs*, SI5 Polytech Nice Sophia, Université Côte d'Azur, France, from November 2019 until December 2019. Supervisor: David Coudert and Frédéric Giroire.

Master 2 (TER): Bruno Tarbes, *Evolution over time of the structure of social graphs*, SI5 Polytech Nice Sophia, Université Côte d'Azur, France, from November 2019 until December 2019. Supervisor: David Coudert and Frédéric Giroire.

Master 2 (apprentissage): Théo Qui, *Implementation and study of Graphs' decompositions*, M2 IFI, Université Côte d'Azur, France, from September 2019 until August 2020. Supervisor: Nicolas Nisse.

Master 2: Athanasia Farmaki, *Implementaiton of algorithms for the dial-a-ride problem with time windows*, in the context of ANR MULTIMOD, Master 2, National Technical University of Athens, Greece, from January 2019 until June 2019. Co-supervisors: David Coudert and Nicolas Nisse.

Master 2: Foivos Fioravantes, *BMRN*-colouring of planar digraphs*, Master 2 IFI, international track Ubinet, Université Côte d'Azur, France, from March 2019 until August 2019. Supervisor: Julien Bensmail.

Master 2: Hicham Lesfari, *Network Anomaly Detection Using Graph Kernels*, Master 2 IFI, international track Ubinet, Université Côte d'Azur, France, from March 2019 until August 2019. Supervisor: Frédéric Giroire.

Master 2: Bai Xin, *Optimization of Drones Trajectory for Optimal Sensor Coverage and Data Collection*, M2 Ubinet, Université Côte d'Azur, France, from March 2019 until August 2019. Supervisor: Christelle Caillouet.

Google Summer of Code: Ritesh K, *Improvement of methods for computing distances in the graph module of Sagemath*, Bachelor of Technology at the Department of Computer Science and Engineering of National Institute of Technology Karnataka, India. from May 2019 until August 2019. Mentor: David Coudert.

Google Summer of Code: Rajat Mittal, *Implementation of algorithms for enumeration of k-shortests simple paths and contribution to the improvement of graph module of Sagemath*, Master at Indian Institute of Technology (BHU) Varanasi, India. from May 2019 until August 2019. Mentor: David Coudert.

Google Summer of Code: Georgios Giapitzakis Tzintanos, *Implementation of new graph traversals (LexBFS, LexDFS, etc.) and contribution to the improvement of graph module of Sagemath*, Bachelor of Science at the National and Kapodistrian University of Athens, Greece. from May 2019 until August 2019. Mentor: David Coudert.

10.2.4. Juries

Jean-Claude Bermond :

President of the PhD prize committee *prix de thèse Graphes "Charles Delorme"* http://gtgraphes.labri.fr/pmwiki/pmwiki.php/PrixTheseDelorme/PrixTheseDelorme;

Christelle Caillouet :

Member of PhD committee of Dorin Rautu, Université de Toulouse, October 1, 2019;

Alexandre Caminada :

Referee for the PhD thesis of Shen Peng, Paris-Sud university, June 17, 2019, Chance Constrained Problem and Its Applications;

Referee for the Pierre Lafitte Price, supported by the Doctoral Schools SFA (Basic and Applied Sciences) and STIC (Sciences and Technologies of Information and Communication) of Université Côte d'Azur and Mines Paris, to enhance the quality of the research work of 2nd year PhD students;

David Coudert :

Referee and member of PhD committee of Valentin Pollet, Université de Montpellier, October 3, 2019;

Referee and member of PhD committee of Francesca Fossati, Sorbonne Université, November 29, 2019;

President of PhD committee of Paul Beaujean, Université Paris Dauphine, December 16, 2019;

Frédéric Havet :

Member of PhD committee Jocelyn Thiébaut, Université de Montpellier, November 19, 2019;

Joanna Moulierac :

Member of PhD committee of Chaopeng Guo, Université de Toulouse, June 14, 2019;

Nicolas Nisse :

Referee and member of PhD committee Valentin Gledel, Université de Lyon (LIRIS), September 24th, 2019;

Referee and member of PhD committee Sébastien Ratel, Université Aix-Marseille (LIS), November 8th, 2019.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Jean-Claude Bermond, Frédéric Havet, Joanna Moulierac, and Nicolas Nisse are involved in Terra Numerica which brings together several popularization groups in order to create a museum of digital sciences.

- Frédéric Havet: Vice-president and member of the scientific committee of the association Institut Esope 21 (https://lewebpedagogique.com/institutesope21/).

10.3.2. Education

- Frédéric Havet, Joanna Moulierac and Nicolas Nisse (responsable) : Participation to Galejade project "Graphes et ALgorithmes : Ensemble de Jeux À Destination des Ecoliers... (mais pas que)" https://galejade.inria.fr/.

  Design of pedagogical resources introducing graphs and algorithms to primary school students.

Training of primary school teachers, ESPE, Nice (March 22, 2019), Lyon (April 10th, 2019).

Intervention Lycée Carnot (Cannes, March 14, 2019), Lycée Sydney Bechet (Antibes, March 13, 2019), Lycée au Cannet (April 5, 2019)

- Frédéric Havet :

    Training of secondary school teachers on graphs and algorithms. April 23, 2019.

10.3.3. Interventions

- Fête de la Science (Frédéric Havet, Nicolas Nisse, Ali Al Zoobi) :

    Villeneuve-Loubet, October 5, 2019;

    Colline du Château de Nice (stands Inria and I3S laboratory), October 4-6, 2019;

    Collège Lycée Vinon-sur-Verdon, October 8-11, 2019;

    Palais des Congrès de Juan-Les-Pins, October 19-20, 2019.

- Ali Al Zoobi :

    Presentation of posters and combinatorial games during the "Fête des Sciences", Collège Emile Roux, June 5, 2019.

- David Coudert :

    Presentation of the *Flinders Hamiltonian Cycle Problem Challenge* to a group of students from classe préparatoire MPSI, Lycée International de Valbonne, June 24, 2019.

- Frédéric Giroire :

    Accueil de la mission locale de Grasse pour une session de médiation scientifique, 26 avril 2019.

- Frédéric Havet :

    Animation of the exhibition "Animals of the Mediterranean sea" 6 classes, Ecole la Tauriac, Toulon, January 24, 2019.

    Conferences "Birds of Var", 6 classes, Ecole élémentaire de Rians, February 1, 2019.

    Conference "Be a mathemagician", Ecole des Pallières, February 2, 2019.

    Animation "Birds of Var", 6 classes Ecole de la Tauriac and 2 classes Ecole de la Beaucaire, Toulon, Mars 07 2019.

    3 conferences "Les pavages", "La science du ballon de football", "Mathémagie" for 10 classes in total. Collège Daudet Nice, April 15, 2019.

    "La magie du binaire". Conference for six classes in Manosque for the "Jeux fabriqués" day organised by DANE 04. April 2, 2019.

    Training of primary school teachers.

- Frédéric Havet, Joanna Moulierac, and Nicolas Nisse participated to the supervision of twelve schoolchildren (3ème) in internship.

- Nicolas Nisse :

    MathC2+, Sophia Antipolis, June 14, 2019

- Michel Syska :

    Member of the organization of the code competition "*Retro Gaming pico-8*" (55 teams of 3 students), April, 2019.

    Organization and supervision of the local site IUT for the national code competition "*La nuit de l'info*" (156 students = 3.7% of participants), December 5-6, 2019.

10.3.4. Internal action

- Frédéric Havet and Nicolas Nisse participated to the Cafe'In presenting Galejade. April 29, 2019.

<div align="center">

CTRL-A Project-Team

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10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Eric Rutten is co-chairing, with Bogdan Robu (Gipsa-lab), the program of the 40th Summer School of Automatic Control, Grenoble, September 2019, on the special topic of Control for Computing Systems.

http://www.gipsa-lab.fr/summerschool/auto2019

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

Eric Rutten is co-chairing, with Françoise Baude, Antonio Fileri, and Nicola Capodieci, the 5th International Workshop on Autonomic High Performance Computing (AHPC 2019), http://hpcs2019.cisedu.info/2-conference/workshops/workshop09-ahpc

as part of The 17th International Conference on High Performance Computing & Simulation (HPCS 2019), July 15 – 19, 2019 Dublin, Ireland, http://hpcs2019.cisedu.info/

10.1.2.2. Member of the Conference Program Committees

Eric Rutten is PC member for :

- international conferences
    - ICAC 2019 (16th IEEE International Conference on Autonomic Computing), Umeøa, Sweden, June 16-20, 2 019 (http://icac2019.cs.umu.se)
    - 17th High Performance Computing & Simulation Conference (HPCS 2019). July 15 – 19, 2019 Dublin, Ireland (http://hpcs2019.cisedu.info/)
    - 15th Workshop on Discrete Event Systems, WODES'20, Rio de Janeiro, May, 13th-15th, 2020. (https://wodes2020.eventos.ufrj.br)
    - CPS&IoT'2020 - the 8th International Conference on Cyber-Physical Systems and Internet-of-Things, Budva, Montenegro, June 8-11, 2020 (http://embeddedcomputing.me/en/cps-iot-2020)
    - (Associate Editor) 4th IEEE Conference on Control Technology and Applications, CCTA 2020, Montreal, August, 2020 (http://ccta2020.ieeecss.org/)
    - 7th International Conference on Control, Decision and Information Technologies, CoDIT'20, June 29 - July 02, 2020, Prague, Czech Republic (https://codit2020.com/)
    - MSR 19, Modélisation des Systèmes Réactifs 2019 LARIS Université d'Angers, France, du 13 au 15 novembre 2019 (http://msr2019.laris.univ-angers.fr/)

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

Eric Rutten is reviewer for

- Science of Computer Programming
- journal of Discrete Event Dynamic System (jDEDS)

10.1.4. Invited Talks

Eric Rutten was invited to give a talk at :

- Workshop on Integrating HPC and FPGAs, December 11, 2018 in Okinawa, Japan ; co-held with the International Workshop on FPGA for HPC (IWFH), the Joint Laboratory on Extreme Scale Computing (JLESC), and the Field-Programmable Technology (FPT'18).

  http://www.fpt18.sakura.ne.jp/workshop.html

  https://collab.cels.anl.gov/display/HPCFPGA/HPC-FPGA

- FETCH 2019, Ecole d'Hiver francophone sur la technologie de conception des systèmes embarqués hétérogènes, Louvain-la-Neuve, Belgique, 28-30 janvier 2019 http://fetch-conference.org
- Languages, Compilation, and Semantics LIP Seminar, 10th Edition, Lyon, 2019, March 21

  http://perso.ens-lyon.fr/christian.perez/journeelangages

- 15th Cloud Control Workshop, Sandhamn, Sweden June 11–13, 2019

  http://cloudresearch.org/workshops/15th/

10.1.5. Leadership within the Scientific Community

Eric Rutten is co-chair of the Technical Committee on Discrete Event Systems (DESTC), a part of the IEEE Control Systems Society (CSS) Technical Activities Board (http://discrete-event-systems.ieeecss.org/tc-discrete/home) ; and member of the IFAC Technical Committee 1.3 on Discrete Event and Hybrid Systems, for the 2017-2020 triennum (http://tc.ifac-control.org/1/3).

10.1.6. Scientific Expertise

Eric Rutten was reviewer for the ANR : *Appel à projets Générique* 2019, PRCI international

10.1.7. Research Administration

Eric Rutten is member of the LIG laboratory council, and in charge of scientific relations between Inria Grenoble Rhône-Alpes and CEA Tech.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : R. Bleuse, C language, 12h lab, L2, Univ. Grenoble Alpes

Licence : R. Bleuse, methodology of software development, 30h, L2, Univ. Grenoble Alpes

Master : S. Mocanu, Computer Networks and Cybersecurity, 16h class, 34h lab, M1, Grenoble-INP/ENSE3

Master : S. Mocanu, Industriel Computer Networks, 8h class, 8h lab, niveau (M1, M2), M2, Grenoble-INP/ENSE3

Master : S. Mocanu, Reliability, 10h class, 8h lab, M2, Grenoble-INP/ENSE3

Master : S. Mocanu, Intrusion Detection and Defense in Depth labs, niveau M2, Grenoble-ENSE3/ENSIMAG

10.2.2. Supervision

- HdR : Stéphane Mocanu ; Cyberdéfense des infrastructures critiques ; COMMUNAUTÉ UNIVERSITÉ GRENOBLE ALPES ; January 2019.
- PhD : Chabha Hireche ; Etude et implémentation d'une approche probabiliste de contrôle de mission de drone autonome ; Université de Bretagne Occidentale ; nov. 2019 ; co-advised by S. Mocanu with Catherine Dezan (U. Bretagne Occidentale), and Jean-Philippe Diguet (U. Bretagne Sud).
- PhD in progress : Neïl Ayeb ; Vers un management des objets de l'IoT décentralisé et adaptable ; dec. 2017 ; co-advised by Eric Rutten with S. Bolle, T. Coupaye (Orange labs).

10.2.3. Juries

Stéphane Mocanu was member of the jury of the PhD defense of Chabha Hireche, Université de Bretagne Occidentale, nov. 2019 (examinator).

Eric Rutten was member of the following juries :

- habilitation (HdR) defense, Stéphane Mocanu, UNIVERSITÉ GRENOBLE ALPES, 16 jan. 2019 (examinator)
- PhD defense of Anis Mezni, INSA Lyon, 13 may 2019 (reviewer)
- PhD defense of Mete Özbaltan, U. Liverpool, 10 dec 2019 (reviewer)
- PhD of Romolo Marotta, Uni. Roma Sapienza, dec 2019 (reviewer)

10.3. Popularization

10.3.1. Interventions

- National events:

  During the 2019 edition of Fête de la Science, Raphaël Bleuse co-hosted with Clément Mommessin (DataMove team) six one-hour popularization sessions. These sessions introduce the concept of infinity, and detail key milestones towards its construction in the modern mathematics for high-school students.

DANTE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Márton Karsai was in the organizing team (general chair) of the Computational Social Science Satellite of the CCS'19 Conference in September 2019 in Singapore
- Márton Karsai was in the organizing team (general chair) of the Machine Learning and Network Science Satellite of the NetSci'19 Conference in June 2019 in Burlington (VT)

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Thomas Begin was co-Chair for the National Conference Algotel 2019.

10.1.2.2. Member of the Conference Program Committees

- Thomas Begin has been member of the PC for the conference IEEE LCN 2019
- Isabelle Guérin Lassous has been a member of the PC for the following conferences in 2019: ACM MSWiM, Mascots, IEEE ICC, IEEE Globecom, IEEE WCNC.
- Márton Karsai has been the member of the PC of the conferences: NetSci, CompleNet, IC2S2, Algotel, NetSciX, CSSCCS, MLNS, Complex Networks, CCS, IC2S2
- Anthony Busson has been member of the PC for Algotel 2019, FNC 2019.
- Christophe Crespelle

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Isabelle Guérin Lassous is member of the editorial boards of Computer Communications (Elsevier), Ad Hoc Networks (Elsevier) and Discrete Mathematics & Computer Science.
- Anthony Busson is member of the editorial boards of Computer Communications (Elsevier).
- Márton Karsai is member of the editorial boards of Advances in Complex Systems (World Scientific)
- Márton Karsai is member of the editorial boards of PLoS ONE
- Philippe Nain is a member of the Advisor Board of Performance Evaluation (Elsevier).

10.1.3.2. Reviewer - Reviewing Activities

- Márton Karsai was acting as a reviewer for the journals of Nature Communications, PNAS, PRL, PRX, PRE, Scientific Reports, EPJ Data Science, SNAM, EPL, EPJ B, PLoS One, Journal of Statistical Mechanics, Physics Letter A, Advanced in Complex Systems, Journal of Physics: Condensed Matter, Complex Networks, New Journal of Physics, Physica Scripta, Network Science; and for project agencies as ANR, FET-H2020 RIA.
- Paulo Gonçalves was reviewer for the following journals: IEEE Transactions on Signal Processing, IEEE Signal Processing Letter, Signal Processing (Elsevier).
- Christophe Crespelle was a reviewer for Algorithmica (Springer) and Theoretical Computer Science (Elsevier).

- Thomas Begin was a reviewer for IEEE Transactions on Network and Service Management, IEEE Transactions on Parallel and Distributed Systems, and Performance Evaluation.
- Anthony Busson was a reviewer for Computer communication, Sensors, IEEE wireless communications letters.

10.1.4. Invited Talks

- Thomas Begin gave the following invited talk:

    Contributions to the Performance Modeling of Computer Networks - CITI lab (Avril 2019, Lyon, France)

- Isabelle Guérin-Lassous gave the following invited talks:

    UAVs and cellular networks: which usage, which constraints, which performance? - Entretiens Jacques Cartier (November 2019, Montreal, Canada)

    How to improve the performance of a Wi-Fi network without changing the Wi-Fi technologie? - Séminaire ENS Rennes (September 2019, Rennes, France)

- Márton Karsai gave the following invited talks:

    Lecture in the Business Analytics and Data Mining MSc program - Bocconi University (7 March 2019, Milano, Italy)

    Complex System Academy - Université de Côte d'Azure (25 March 2019, Nice, France)

    YEP XV - Information Diffusion on Random Networks - TU/e, EUROSTAT (27 April 2019, Eindhoven, The Netherlands)

    Lectures about Artificial Intelligence - EM Lyon Business School - AIM Institute (4 April 2019, Lyon, France)

    MOTIF Conference on Human Dynamics - Universidade Federal de Minas Gerais (10 April 2019, Belo Horizonte, Brazil)

    UNICEF Innovation seminar - UNICEF Innovation Office - United Nations (4 June 2019, New York, NY, USA)

    MédiaLab seminar - SciencePo Paris (25 June 2019, Paris, France)

    AGRANDA Simposio Argentino de Ciencia de Datos Grandes Datos - 48 JAIIO (17 Septemner 2019, Salta, Argentina)

    Kickoff meeting of the DYNASNET Synergy ERC project - Central European University (23 September 2019, Budapest, Hungary)

    Dondena Seminar Series- Bocconi University (14 October 2019, Milano, Italy)

    Agglomeration and Social Networks Seminar - MTA Center for Economic and Regional Studies (8 November 2019, Budapest, Hungary)

    BigData and Mobility Workshop - University of Havana (25-26 November, Havana, Cuba)

10.1.5. Scientific Expertise

- Isabelle Guérin Lassous

    has been a member of the strategic consulting of the Fondation Blaise Pascal since September 2019.

    has been a member of the scientific council of the Société Informatique de France since November 2019

- Éric Guichard

    is a member of the scientific committee of LASCO Idea Lab of the IMT (LAboratoire Sens et COmpréhension du monde contemporain de l'Institut Mines-Télécom).

is a member of the international evaluation board of the doctoral program *Filosofia da Ciencia, Tecnologia, Arte e Sociedade* of the University of Lisbon.

is the manager of the RAIL (Réseau de l'Atelier Internet Lyonnais), founded in 2017 and supported by IXXI and Enssib.

10.1.6. Research Administration

- Paulo Gonçalves

    is scientific liaison officer for international relations in Inria Research Centre of Rhône-Alpes.

    is a member of the executive committee of the Milyon labex and referent for its valorisation committee.

    is correspondant for the theme "Big Data" of the *Fédération d'Informatique de Lyon*.

    is member of the Council of the LIP laboratory.

- Isabelle Guérin Lassous

    is member of the department council of the Computer Science department of Université Lyon 1.

- Anthony Busson

    is member of the Thesis Commission at LIP.

    is head of the computer science department at IUT (Institut Universitaire de Technologie) - Université Lyon Claude Bernard Lyon 1.

- Thomas Begin

    is an elected member of the Council of the LIP laboratory.

    is an elected member of the department council of the Computer Science department of Université Lyon 1.

- Márton Karsai

    is the co-responsible for the M2 master program in Modelling of Complex Systems at ENS Lyon

    is the elected council member of the Complex System Society (2015-)

    is the elected member of executive committee of the Complex System Society (2018-)

    is the elected member of the steering committee of the IXXI Complex System Institute (2017-)

    is the member of the computational infrastructure board of LIP

    is the member of the communication board of LIP

- Éric Guichard is a member of the steering committee of the IXXI Complex System Institute

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence :

Thomas Begin: Computer Networks, 18.5h, L3, Université Lyon 1.

Márton Karsai: Introduction to Complex Networks, 6h, L3, ENS Lyon

Master :

Thomas Begin: Distributed Algorithms, 18h, M1, Université Lyon 1.

Thomas Begin: Computer Networks, 44h, M1, Université Lyon 1.

Thomas Begin: System Administration & Security, 10.5h, M2, Université Lyon 1.

Thomas Begin: Advanced Networks, 58h, M2, Université Lyon 1.

Thomas Begin: Cloud Computing, 9h, M2, Université Lyon 1.

Isabelle Guérin-Lassous: Distributed Algorithms, 30h, M1, Université Lyon 1.

Isabelle Guérin-Lassous: Networking, 14h, M1, Université Lyon 1.

Isabelle Guérin-Lassous: Wireless networks, 9h, M2, Université Lyon 1.

Isabelle Guérin-Lassous: Quality of Service, 5h, M2, Université Lyon 1.

Isabelle Guérin-Lassous: ToIP and streaming, 12h, M1, Université Lyon 1.

Éric Guichard: Économie du web et du document, 36h, M2, Enssib & Univ. Lyon 1.

Éric Guichard: Programmation éditoriale, 18h, M2, Enssib & Univ. Lyon 1.

Márton Karsai: Complex Networks, 36h, M2, ENS Lyon

Márton Karsai: Data Bases Data Mining, 20h, M1, ENS Lyon

Cycle ingénieur (Bac+3 à Bac+5):

Paulo Gonçalves: Traitement du Signal (déterministe, aléatoire, numérique), Estimation statistique. 80 heures Eq. TD. CPE Lyon, France.

Marion Foare: Traitement du Signal (déterministe, aléatoire), Traitement d'images, Compression, Projets. 115 heures Eq. TD. CPE Lyon, France.

Responsabilités

Thomas Begin : Head of the Master 2 speciality SRIV (Systèmes, Réseaux et Infrastructures Virtuelles) at UCBL - http://master-info.univ-lyon1.fr/SRIV

Isabelle Guérin Lassous has been appointed as the president of the CAPES NSI (Numérique et Science Informatique) committee since November 2019. This committee will be in charge of the recruitment of the computer science teachers in high schools.

Anthony Busson is head of the computer science department at IUT Lyon 1 Doua.

10.2.2. Supervision

PhD defense: Esteban BAUTISTA RUIZ, "Laplacian Powers for Graph-Based Semi-Supervised Learning", November 27, 2019. P. Gonçalves (Dir.).

PhD defense: Marija STOJANOVA, "Performance Modelling of IEEE 802.11 networks" ,December 16, 2019. T. Begin (Dir.)

PhD in progress: Mohamed Adbelwedoud LAFDAL, Inference of conflict graph in IEEE 802.11 networks. September 2017, A. Busson and I. Guérin Lassous

PhD in progress: Samuel UNICOMB, Spreading processes on temporal networks, Oct 2016, M. Karsai director

PhD in progress: Jacobo Levy ABITBOL, Information diffusion and language evolution on dynamical social networks, Oct 2016, M. Karsai director and E. Fleury

PhD in progress: Sicheng DAI, Dynamic Multilayer Network Modelling, M. Karsai director. Started October 1st, 2017.

PhD in progress: Gaetan FRUSQUE, *Modal Decompositions of Dynamic Graphs : Application in Neurosciences*, P. Gonçalves (Dir. and P. Borgnat, co-advisor). Started October 1st, 2017.

PhD in progress: Rémy GRÜNBLATT, Controlled mobility for UAV networks, October 2017, I. Guérin Lassous and O. Simonin.

PhD in progress: Dominique BARBE, From local to global learning, P. Gonçalves (Dir. with M. Sebban and P. Borgnat, co-advisors). Started October 1st, 2018.

PhD in progress: Nour el Houda BOUZOUITA, supervised by A. Busson and Hervé Rivano. Wi-Fi network Optimization through crowd sensing applications. November 2018 - November 2021.

10.2.3. Juries

Paulo Gonçalves was reviewer of the Ph.D thesis examination board of Xiaoyi MAI, Centrale Supelec, October 2019.

Paulo Gonçalves was member of the Ph.D thesis examination boards of Karina Ashurbekova (Université Grenoble Alpes, December 2019).

Isabelle Guérin Lassous was a reviewer of the Ph.D thesis examination boards of Fannia Pacheco (UPPA, November 2019) and Pierre Brunisholz (Université Grenoble Alpes, May 2019).

Isabelle Guérin Lassous was a reviewer of the HDR examination board of Géraldine Texier (IMT-Atlantique, December 2019).

Isabelle Guérin Lassous was the president of the Ph.D thesis examination boards of Marc Heinrich (Université de Lyon, July 2019) and Thierry Arrabal (Université Franche-Comté, November 2019).

Isabelle Guérin Lassous was the president of the HDR examination boards of Christophe Alias (ENS de Lyon, May 2019), Marton Karsai (ENS de Lyon, April 2019) and Razvan Stanica (INSA de Lyon, November 2019).

Isabelle Guérin Lassous was a member of the Ph.D thesis examination board of Jalal Rachad (Telecom Paris, December 2019).

Isabelle Guérin Lassous was a member of the HDR examination board of Katia Jaffres-Runser (INP Toulouse, July 2019).

Thomas Begin was a reviewer of the Ph.D. thesis examination board of Amira KAMLI, Télécom-ParisSud, October 2019.

Márton Karsai was the member of the Prix de Thèse Systm`es Complexes - Complex System Institute, July 2019

Márton Karsai was the member of the PhD jury of Jordam Cambe (ENS Lyon), October 2019

Anthony Busson was a reviewer of the Ph.D thesis examination board of Jalal Rachad (Telecom Paris, December 2019).

Anthony Busson was a reviewer of the Ph.D thesis examination board of Henri-Joseph Audeoud (Université Grenoble Alpes, December 2019).

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Isabelle Guérin Lassous has been the managing director of the Foundation Blaise Pascal until the end of June 2019. The objectives of the foundation are to promote mathematics and computer science and to attract young people to scientific fields like computer science and mathematics. The actions of the FBP focus on:

- a support to actors that promote mathematics and computer science via allocated funding based on call of proposals;
- a structuring of actors to increase the impacts of their actions, to coordinate the efforts and to share experiences;
- a development of innovative experiences via summer camps and clubs of mathematics and computer science.

10.3.2. Interventions

Isabelle Guérin Lassous participated to the project Science XX Elles organized by the association Femmes & Sciences, CNRS and Ecole Normale Supérieure de Lyon. A portrait has been realized and has been exhibited in from of the Musée des Confluences during La Fête de la Science in October 2019 (http://www.femmesetsciences.fr/lascience-taillexxelles/lyon/isabelle-guerin-lassous/. She also participated to a speed meeting with families visiting the Musée des Confluences during which she has promoting her research activity.

Isabelle Guérin Lassous spent one day in high school (lycée St Just in Lyon) to promote computer science and to present female computer scientists in from of terminal classes.

Isabelle Guérin Lassous participated to the Challenge Innovatech organized by the association Elles Bougent. She was a member of the selection committe who selected a scientific project designed by a group of young girls (in high school).

DATAMOVE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- President of the steering committee of Edu-Europar.
- President of the steering committee of EGPGV (Eurographics Symposium on Parallel Graphics and Visualization).
- Member of the steering committee of Europar.
- Member of the steering committee of HeteroPar.

10.1.1.2. Member of the Organizing Committees

- Member of Organizing committee of HPML Workshop, co-located with CCGRID 2019
- Member of organization committee of Conv'2019

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Vice-Chair of Algorithms track of IPDPS 2019
- Workshop Chair at Hetero-Par 2019
- Member of the steering committee of Euro-Par 2019
- Program co-chair of ISAV 2019 (workshop of SC)
- Member of steering committee of EGPV 2019

10.1.2.2. Member of the Conference Program Committees

- CCGrid 2019 (19th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing), May, Larcana, Cyprus.
- PARCO 2019 (International Conference on Parallel Computing), September, Prague, Czech Republic.
- PPAM 2019 (13th International Conference on Parallel Processing and Applied Mathematics), September, Bialystok, Poland.
- STACS 2019 (36th International Symposium on Theoretical Aspects of Computer Science), March, Berlin, Germany.
- Euro-Par 2019, August, Göttingen, Germany.
- IESM, September, Shanghai, China.
- ISAV 2019 (In Situ Infrastructures for Enabling Extreme-scale Analysis and Visualization), November, Denver, US.
- SBAC-PAD 2019 (International Symposium on Computer Architecture and High Performance Computing), October, Campo Grande, Brazil.
- HiPC 2019 (26th IEEE International Conference on High Performance Computing, Data, and Analytics), December, Hyderabad, India.
- ALGOCLOUD 2019 (5th International Symposium on Algorithmic Aspects of Cloud Computing), September, Munich, Germany.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Associate Editor of the Parallel Computing journal PARCO.
- Member of the Editorial Board of Computational Methods in Science and Technology.

10.1.4. Research Administration

- Director of Pôle MSTIC of COMUE Univ. Grenoble-Alpes.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: Denis Trystram is responsible of the first year (M1) of the international Master of Science in Informatics at Grenoble (MOSIG-M1). 200 hours per year in average.
- Master: Fanny Dufossé. 90 hours per year. Combinatorial scientific computing in Master at ENS Lyon, Algorithmic in Licence at Grenoble INP and Algorithmic at Univ. Grenoble-Alpes.
- Master: Pierre-François Dutot. 226 hours per year. Licence (first and second year) at IUT2/UPMF (Institut Universitaire Technologique de Univ. Grenoble-Alpes) and 9 hours Master M2R-ISC Informatique-Systèmes-Communication at Univ. Grenoble-Alpes.
- Master: Grégory Mounié. 237 hours per year. Master (M1/2nd year and M2/3rd year) at Engineering school ENSIMAG, Grenoble-INP, Univ Grenoble Alpes.
- Master: Bruno Raffin. 28 hours per year. Parallel System. International Master of Science in Informatics at Grenoble (MOSIG-M2).
- Master: Olivier Richard is responsible of the third year of the computer science department of Grenoble INP. 222 hours per year. Master at Engineering school Polytech-Grenoble, Univ. Grenoble-Alpes.
- Master: Frédéric Wagner. 220 hours per year. Engineering school ENSIMAG, Grenoble-INP (M1/2nd year and M2/3rd year).
- Master: Yves Denneulin. 192 hours per year. Engineering school ENSIMAG, Grenoble-INP (M1/2nd year and M2/3rd year).

10.2.2. Supervision

- PhD: Danilo Carastan Dos Santos, Apprentissage sur heuristiques simples pour l'ordonnancement online de tâches parallèles, Univ Grenoble Alpes and Federal University of ABC, Brazil (co-tutelle), November, 27th 2019. Advisers: Denis Trystram and Raphael Yokoingawa De Camargo.
- PhD: Michael Mercier, Resource Management and Job Scheduling in HPC–Cloud environments towards the Big Data era, Univ. Grenoble Alpes. Started October 2016. July, 1st 2019. Advisers: Olivier Richard and Bruno Raffin.
- PhD in progress: Mohammed Khatiri, Tasks scheduling on heterogeneous Multicore, Univ. Grenoble-Alpes and University Mohammed First (co-tutelle), Advisers: Denis Trystram, El Mostafa DAOUDI (University Mohammed First, Oujda, Morocco)
- PhD in progress: Adrien Faure, Scheduling with Resource Augmentation, Advisers: Denis Trystram, Olivier Richard
- PhD in progress: Clément Mommessin, Scheduling on heterogeneous platforms, Advisers: Denis Trystram
- PhD in progress: Loris Felardos, Deep Learning for the Analytics of Molecular Systems, Advisers: Bruno Raffin, Guillaume Charpiat (Inria team Tau), Jérome Hénin (IBPC).
- PhD in progress: Salah Zrigui, Learning Scheduling Strategies, Advisers: Denis Trystram, Arnaud Legrand.

- PhD in progress: Sebastian Friedemann, Large Scale Data Assimilation, Adviser: Bruno Raffin.
- PhD in progress: Vincent Fagnon, Analyse de politique d'ordonnancement dynamique pour objets mobiles , Adviser: Denis Trystram
- PhD in progress: Angan Mitra, Theoretical and implementation challenges in Lifelong Learning and Edge Computing , Adviser: Denis Trystram
- PhD in progress: Paul Youssef, Coresets Analysis , Adviser: Denis Trystram
- PhD in progress: Ioannis Panagiotas, High performance algorithms for big data graph and hyper-graph problems, Advisers: Bora Uçar (LIP) and Fanny Dufossé

10.2.3. Juries

- PhD Defense of Malin Rau, *Useful structures and how to find them*. Kiel (Allemagne). May, 24th, 2019. Referee.
- PhD Defense of Mohamad El Sayah, Random Generation for the Performance Evaluation of Scheduling Algorithms, November 20th 2019, Université de Bourgogne Franche-Comté. Member.
- PhD Defense of David Deibe, Geospatial Processing and Visualization of Point Clouds: from GPUs to Big Data Technologies, Univ. of A Coruna, December 2019. Referee
- PhD Defense of Charles Gueunet, Calcul Haute Performance pour l'Analyse Topologique de Données par Ensembles de Niveaux, Feburary 15th 2019, Sorbonne Université
- PhD Defense of Jorge Veiga Fachal, Evaluation and Optimization of Big Data Processing on High Performance Computing Systems, Univ. of A Coruna, Fev 2019. Jury.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Commission des emplois scientifiques du centre GRA

10.3.2. Interventions

- Fête de la Science, Grenoble
- CS unplugged for schoolchildren, Inria RA

<p style="text-align:center;color:red;font-weight:bold;">DELYS Project-Team</p>

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. Chair of Conference Steering Committees

- Marc Shapiro is a member of the steering committee of the yearly Workshop on Principles and Practice of Consistency (PaPoC), co-located with EuroSys.

8.1.2. Scientific Events: Selection

8.1.2.1. Member of the Conference Program Committees

Marc Shapiro, member of PC of the European Conference on Computer Systems (EuroSys) 2020, in Heraklion (Greece).

Marc Shapiro, member of PC of the European Conference on Computer Systems (EuroSys) 2019, in Dresden (Germany).

Marc Shapiro, member of Progamme Committed of the ACM Symposium on Principles of Distributed Computing (PODC) 2019, in Salerno, Italy.

Marc Shapiro, member of the PC of the Workshop on Planetary-Scale Distributed Systems (W-PSDS) 2019, in Lyon.

Marc Shapiro, member of the Technical Program Committee of the Workshop on Advanced tools, programming languages, and PLatforms for Implementing and Evaluating algorithms for Distributed systems (ApPLIED) 2019, in Budapest, Hungary.

Pierre Sens, 29th International Symposium on Software Reliability Engineering (ISSRE 2019), 19th IEEE International Symposium on Network Computing and Applications (NCA 2019), 38th IEEE International Symposium on Reliable Distributed Systems (SRDS 2019), Gestion de Données – Principes, Technologies et Applications (BDA 2019).

Swan Dubois, 21st International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2019), 21èmes Rencontres Francophones pour les Aspects Algorithmiques des Télécommunications (AlgoTel'18).

Jonathan Lejeune, 22nd Innovation in Clouds, Internet and Networks (ICIN 2019)

8.1.2.2. Reviewer

Swan Dubois, 26th International Colloquium on Structural Information and Communication Complexity (SIROCCO'19).

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

Pierre Sens, International Journal of High Performance Computing and Networking (IJHPCN)

8.1.3.2. Reviewer - Reviewing Activities

Swan Dubois, Distributed Computing, Theoretical Computer Science.

Luciana Arantes, Journal of Parallel and Distributed Computing.

Pierre Sens, Journal of Parallel and Distributed Computing

8.1.4. Invited Talks

Marc Shapiro gave the keynote presentation titled "Living on the edge, safely; or: Life without consensus" at the 7th International Conference on Networked Systems, in Marrakech, Morroco, June 2019.

Marc Shapiro gave an invited talk on "The programming continuum, from core to edge," at the Workshop on Verification of Distributed Systems (VDS), June 2019, Marrakech, Morroco.

Marc Shapiro gave two invited talks at the Dagstuhl Seminar on "Programming Languages for Distributed Systems and Distributed Data Management," October 2019.

Marc Shapiro was invited to speak about "Living Without Consensus," at the seminar "Taking Stock of Distributed Computing," at Collège de France, April 2019. The seminar was organised in conjunction with the *Chaire informatique et sciences numériques* of Rachid Guerraoui.

Pierre Sens, *Probabilistic Byzantine Tolerance Scheduling in Hybrid Cloud Environments*. Research Seminar, University of Fluminense, Brazil, October 2019

Pierre Sens, *Fault tolerance in large and dynamic distributed systems*. Research Seminar, University of Fluminense, Brazil, October 2019

Luciana Arabtes, *A Communication-Efficient Causal Broadcast Protocol*. Research Seminar, University of Fluminense, PUC-Rio, Brazil, October 2019

8.1.5. Leadership within the Scientific Community

- Marc Shapiro is Vice-Chair for Research of Société informatique de France, the French learned society in Informatics.

8.1.6. Research Administration

Pierre Sens, since 2016: Member of Section 6 of the national committee for scientific research CoNRS

Franck Petit, Pierre Sens, since 2012: Member of the Executive Committee of Labex SMART, Co-Chairs of Track 4, Autonomic Distributed Environments for Mobility.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Julien Sopena is Member of "Directoire des formations et de l'insertion professionnelle" of Sorbonne Université, France

Master: Julien Sopena is responsible of Computer Science Master's degree in Distributed systems and applications (in French, SAR), Sorbonne Universités, France

Master: Luciana Arantes, Swan Dubois, Jonathan Lejeune, Franck Petit, Pierre Sens, Julien Sopena, Advanced distributed algorithms, M2, Sorbonne Université, France

Master: Jonathan Lejeune, Designing Large-Scale Distributed Applications, M2, Sorbonne Université, France

Master: Maxime Lorrillere, Julien Sopena, Linux Kernel Programming, M1, Sorbonne Université, France

Master: Luciana Arantes, Swan Dubois, Jonathan Lejeune, Pierre Sens, Julien Sopena, Operating systems kernel, M1, Sorbonne Université, France

Master: Luciana Arantes, Swan Dubois, Franck Petit, Distributed Algorithms, M1, Sorbonne Université, France

Master: Franck Petit, Autonomic Networks, M2, Sorbonne Université, France

Master: Franck Petit, Distributed Algorithms for Networks, M1, Sorbonne Université, France

Master: Jonathan Lejeune, Julien Sopena, Client-server distributed systems, M1, Sorbonne Université, France.

Master: Julien Sopena, Marc Shapiro, Ilyas Toumlilt, Francis Laniel. Kernels and virtual machines (*Noyaux et machines virtuelles*, NMV), M2, Sorbonne Université, France.

Licence: Pierre Sens, Luciana Arantes, Julien Sopena, Principles of operating systems, L3, Sorbonne Université, France

Licence: Swan Dubois, Initiation to operating systems, L3, Sorbonne Université, France

Licence: Swan Dubois, Multi-threaded Programming, L3, Sorbonne Université, France

Licence: Jonathan Lejeune, Oriented-Object Programming, L3, Sorbonne Université, France

Licence: Franck Petit, Advanced C Programming, L2, Sorbonne Université, France

Licence: Swan Dubois, Jonathan Lejeune, Julien Sopena, Introduction to operating systems, L2, Sorbonne Université, France

Licence: Mesaac Makpangou, C Programming Language, 27 h, L2, Sorbonne Université, France

Ingénieur 4ème année : Marc Shapiro, Introduction aux systèmes d'exploitation, 26 h, M1, Polytech Sorbonne Université, France.

Licence : Philippe Darche (coordinator), Architecture of Internet of Things (IoT), 2 × 32h, L3, Institut Universitaire Technologique (IUT) Paris Descartes, France.

Engineering School: Philippe Darche (coordinator), Solid-State Memories, 4th year, ESIEE, France.

DUT: Philippe Darche (coordinator), Introduction to Computer Systems - Data representation, 60h, Institut Universitaire Technologique (IUT) Paris Descartes, France.

DUT: Philippe Darche (coordinator), Computer Architecture, 32h, Institut Universitaire Technologique (IUT) Paris Descartes, France.

DUT: Philippe Darche (coordinator), Computer Systems Programming, 80h, Institut Universitaire Technologique (IUT) Paris Descartes, France.

8.2.2. Supervision

PhD: João Paulo de Araujo, "L'exécution efficace d'algorithmes distribués dans les réseaux véhiculaires", funded by CNPq (Brésil), Sorbonne Univ, Apr. 2019. Advised by Pierre Sens and Luciana Arantes.

PhD: Sébastien Bouchard, "Gathering with faulty robots", Sorbonne Univ., Sep. 2019. Advised by Swan Dubois, Franck Petit, Yoann Dieudonné (University of Picardy Jules Verne)

PhD: Marjorie Bournat, "Speculation and Graceful Degradability for Robots in Highly Dynamic Environments", Sorbonne Univ., Jun. 2019. Advised by Swan Dubois, Franck Petit, Yoann Dieudonné (University of Picardy Jules Verne)

PhD: Damien Carver, "HACHE : HorizontAl Cache cHorEgraphy - Toward automatic resizing of shared I/O caches.", Sorbonne Univ., May 2019. Advised by Sébastien Monnet, Julien Sopena, Dimitri Refauvelet (Magency).

CIFRE PhD in progress: José Alves Esteves, "Adaptation dynamique en environnements répartis contraints", Sorbonne Univ., since Sep. 2019. Advised by Pierre Sens and Amina Boubendir Orange Labs.

PhD in progress: Arnaud Favier, "Algorithmes de coordination répartis dans des réseaux dynamiques", Sorbonne Univ., since Sep. 2018. Advised by Pierre Sens and Luciana Arantes.

PhD in progress: Saalik Hatia, "Efficient management of memory and storage for CRDTs", Sorbonne Univ., since Oct. 2018. Advised by Marc Shapiro.

CIFRE PhD in progress: Guillaume Fraysse, Orange Lab - Inria, "Ubiquitous Resouces for Service Availability", since Jul. 2017. Advised by Pierre Sens, Imen Grida Ben Yahia (Orange-Lab) , Jonathan Lejeune, Julien Sopena.

PhD in progress: Francis Laniel, "Vers une utilisation efficace de la mémoire non volatile pour économiser l'énergie."Sorbonne Univ., since Sept. 2017. Advised by Marc Shapiro, Julien Sopena, Jonathan Lejeune.

PhD in progress: Gabriel Le Bouder, "Autonomic synchronization", Sorbonne Univ., since Sep. 2019. Advised by Franck Petit.

PhD in progress: Benoît Martin, "Protocol de cohérence hybride: de la cohérence causal à la cohérence forte", Sorbonne Univ., since Sep. 2019. Advised by Mesaac Makpangou and Marc Shapiro.

PhD in progress: Sreeja Nair, "Just-Right Consistency for massive gee-replicated storage", Sorbonne Univ., since Apr. 2018. Advised by Marc Shapiro.

PhD in progress: Laurent Prosperi, "Abstractions, langage et runtime pour les systèmes distribués", Sorbonne Univ., since Sep. 2019. Advised by Marc Shapiro.

CIFRE PhD in progress: Jonathan Sid-Otmane. "Étude des critères de distribution et de l'usage d'une base de données distribuée pour un OS Telco", since Dec. 2017. Advised by Marc Shapiro, with Sofiane Imadali and Frédéric Martelli, Orange Labs.

PhD in progress: Ilyas Toumlilt, "Bridging the CAP gap, all the way to the edge", Sorbonne Univ., since Sep. 2016. Advised by Marc Shapiro.

CIFRE PhD in progress: Dimitrios Vasilas, "Indexing in large-scale storage systems", Sorbonne Univ., since Sep. 2016. Advised by Marc Shapiro, with Brad King, Scality.

PhD in progress: Daniel Wladdimiro, "Adaptation dynamique en environnements répartis contraints", Sorbonne Univ., since Sep. 2019. Advised by Pierre Sens and Luciana Arantes.

PhD in progress: Daniel Wilhelm, "Algorithmes de diffusion causale dans les systèmes répartis dynamique", Sorbonne Univ., since Oct. 2019, Pierre Sens and Luciana Arantes.

8.2.3. Juries

Franck Petit was the reviewer of:

- David Ilcinkas, HDR, LaBRI, Bordeaux

Pierre Sens was the reviewer of:

- Heithem Abbes, HDR, LIPN, Villetaneuse
- Xavier Etchevers, HDR, LIG, Univ. Grenoble
- Nicolas Aussel, PhD, SAMOVAR, Telecom Sud Paris
- Paul Chaignon, PhD, LORIA, Nancy
- Jad Darrous, PhD, LIP, ENS-Lyon
- Umar Ozeer, PhD, LIG, Univ. Grenoble
- Bharati Sinha, PhD, National Institute of Technology Kurukshetra, India
- Amir Teshome Wonjiga, PhD, IRISA, Rennes

Pierre Sens was Chair of

- Julien Loudet, PhD, DAVID, UVSQ
- Asma Berriri, PhD, SAMOVAR, Telecom Sud Paris

Marc Shapiro was a reviewer for the CSD (mid-thesis commitee) for Khaled Zaouk, PhD student of Yanlei Diao at École Polytechnique.

8.3. Popularization

8.3.1. Articles and contents

- Swan Dubois and Franck Petit coauthored the book entitled "*Introduction to Distributed Self-Stabilizing Algorithms*" [35], that aims at being a comprehensive and pedagogical introduction to the concept of *self-stabilization*.

- Marc Shapiro co-authored two entries for the Encyclopedia of Big Data Technologies (published by Springer, 2019):
    - "Database Consistency Models" [38].
    - "Conflict-Free Replicated Data Types CRDTs" [37].

- Marc Shapiro contributed the post "Living at the edge, safely" to the LightKone blog [6].

<h1 style="text-align:center; color:red">DIANA Project-Team</h1>

9. Dissemination

9.1. Promoting Scientific Activities

Chadi Barakat is on the editorial board of the Computer Networks journal, and was/is on the Technical Program Committee for the Network Traffic Measurement and Analysis Conference (2019 and 2020), the IEEE Symposium on Measurements and Networking M&N (2019), the International Conference on Network and Service Management (CNSM 2019) and the NetLearn Workshop (2020). He is currently in charge of international affairs at Inria Sophia Antipolis and is member of the COST-GTRI of Inria.

Walid Dabbous is member of the scientific committee of the DS4H Graduate school. He is also member of the Ubinet International Master program steering committee. He served as a Technical Program Committee member of the Artefact Evaluation Committee for the CoNext 2019 conference. He was member of the selection committee for the 2019 ACM SIGOPS France and GDR RSD thesis prize.

Arnaud Legout is the president of the Commission of the users of IT resources of Sophia Antipolis Inria research center.

Damien Saucez has co-chaired the ACM SIGCOMM *Artefact Evaluation Committee* whose role is to assess the reproducibility level of papers accepted to ACM SIGCOMM sponsored conferences and journals. He was TPC co-chair of the 2019 ACM Workshop on ns-3. He is regular reviewer for IEEE, ACM, Elsevier, and Springer journals.

Thierry Turletti, Senior ACM and IEEE member, served in 2019 in the program committees of the following international workshops and conferences: 2nd Workshop on Emerging Trends in Softwarized Networks (ETSN'19), Paris, France, June 28, 2019; 10th Workshop on ns-3, Mangalore, India, University of Florence, Italy, June 19-20 2019; 21st Algotel Conference, Narbonne, France, June 3-7, 2019; and VTC2019-Spring workshop, Kuala Lumpur, Malaysia, 28 April – 1 May 2019. Thierry Turletti is president of the Committee for Technological Development (CDT) and member of the committee NICE that studies postdoc and visiting researcher applications at Inria Sophia Antipolis. Thierry Turletti is member of the Editorial Boards of the Journal of Mobile Communication, Computation and Information (WINET) published by Springer Science and of the Advances in Multimedia Journal published by Hindawi Publishing Corporation.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master 2 Ubinet: Chadi Barakat and Walid Dabbous, Evolving Internet, 31.5 hours, M2, University of Nice-Sophia Antipolis, France.

Master Ubinet: Chadi Barakat and Walid Dabbous, Internet Measurements and New Architectures, 31.5 hours, M2, University of Nice-Sophia Antipolis, France.

Master 1 in Computer Science: Chadi Barakat, Computer Networks, 15 hours, M1, University of Nice Sophia Antipolis, France.

Master 1 in Computer Science: Chadi Barakat, Internet of the Future, 15 hours, M1, University of Nice Sophia Antipolis, France

Master Estel: Chadi Barakat, Voice over IP, 9 hours, University of Nice-Sophia Antipolis, France.

Master Ubinet: Arnaud Legout, From BitTorrent to Privacy, 36 hours, M2, University of Nice-Sophia Antipolis, France.

Master 1 in Computer Science: Arnaud Legout, Oral and written communications, 18 hours, M1, University of Nice-Sophia Antipolis, France.

Master IUP GMI: Damien Saucez, Security and privacy in networks, 38h, M2, University of Avignon, France.

E-learning

Python: Arnaud Legout and Thierry Parmentelat are co-authors of the MOOC Python 3 : "Python 3 : des fondamentaux aux concepts avancés du langage" that lasts 9 weeks on FUN (https://www.france-universite-numerique-mooc.fr/), UCA. For the second session there were 12748 registered persons. In total, this MOOC all on its editions has been followed by 57938 persons.

9.2.2. Supervision

PhD in progress: Othmane Belmoukadam works on "QoE aware content management in the Internet caching and transport". He is supervised by Chadi Barakat and funded by the doctoral school EDSTIC of Université Côte d'Azur (UCA).

PhD in progress: Yanis Boussad works on "Large scale characterization of the exposition to microwaves". He is co-supervised with Leonardo Lizzi, LEAT.

PhD in progress: Giuseppe Di Lena works on "Building a resilience methodology for NFV/SDN" in Apr 2018. His PhD is co-supervised by Thierry Turletti, Damien Saucez and Frédéric Giroire from the Coati project-team .

PhD started: Mamoutou Diarra started his PhD on "Multi-access Edge Computing" in november 2019. He is co-supervised by Thierry Turletti, Walid Dabbous and Amine Ismail from Ekinops.

PhD stopped: Thibaut Ehlinger stopped his PhD on "Mapping Quality of Service metrics to user Quality of Experience in the Internet" in April 2019. He was co-supervised by Chadi Barakat and Vassilis Christophides (EPI MiMove, Inria Paris).

PhD started: Houssam Elbouanani started his PhD on "Experiment control for reproducible research" in december 2019. He is co-supervised by Walid Dabbous, Chadi Barakat and Thierry Turletti.

PhD in progress: Iman Fouad started her PhD on on Web tracking technologies and privacy protection in november 2017. Her thesis is co-supervised by Arnaud Legout and Nataliia Bielova (Indes).

PhD: Karyna Gogunska defended her PhD thesis [11] entitled "Empowering Virtualized Networks with Measurement As a Service (MaaS)" in december 2019. Her thesis was co-supervised by Chadi Barakat and Guillaume Urvoy-Keller (I3S) and was funded by the Labex UCN@SOPHIA.

PhD: Muhammad Jawad Khokhar defended his PhD thesis [12] entitled "From Network Level Measurements to Expected Quality of User Experience" in october 2019. His PhD was supervised by Chadi Barakat and was funded by the ANR BottleNet project.

PhD: Mohamed Naoufal Mahfoudi defended his PhD thesis entitled [13] "Unlocking Wireless Sensing Potential in Wi-Fi and IoT Networks" in ocotber 2019. His thesis was co-supervised by Walid Dabbous and Robert Staraj (LEAT) and was funded by the Labex UCN@SOPHIA.

PhD: Ghada Moualla defended her PhD thesis [14] entitled "Resilient Virtualized Network Functions for Data Centers and Decentralized Environments" in september 2019. Her thesis is co-supervised by Thierry Turletti and Damien Saucez and was funded by the ANR Reflexion project.

PhD in progress: Imane Taibi works on "Big data analysis for network monitoring and troubleshooting". She is co-supervised by Gerardo Rubino, Yassine Hadjadj-Aoul from the Dionysos project-team and Chadi Barakat.

PhD in progress: Mathieu Thiery works on "Data protection of connected objects and smartphones" in April 2017. He is co-supervised by Vincent Roca from the Privatics project-team and Arnaud Legout.

PhD in progress: Thibaud Trolliet works on "Exploring trust on Twitter". He is now fully supervised by Frederic Giroire and member of the Coati project team.

9.2.3. *Juries*

Chadi Barakat served as reviewer of Jingxiu SU PhD thesis, "Recherches sur la mesure de l'analyse du tracking sur le Web", defended in December 2019 at the University Grenoble Alpes and the Chinese Academy of Sciences.

Chadi Barakat served as examiner of Lakhdar Meftah PhD thesis, "Towards Privacy-sensitive Mobile Crowd-sourcing", defended in December 2019 at the University of Lille, France.

Chadi Barakat served as reviewer of Mariem Ben Yahia PhD thesis, "Low Latency Video Streaming Solutions based on HTTP/2", defended in May 2019 at IMT-Atlantique, France.

Chadi Barakat served as reviewer of Hamza Ben Ammar PhD thesis, "On Models for Performance Evaluationand Cache Resources Placement in Multi-Cache Networks", defended in May 2019 at the University of Rennes 1, France.

Chadi Barakat served as jury member for the mid-term review of the PhD thesis of Antoine Saverimoutou (Orange Labs) for his thesis entitled "Métrologie de l'Internet du futur: Nouvelles métriques et méthodes de mesure de la qualité de navigation Web" in March 2019.

Walid Dabbous wrote an examiner report on the thesis of Fangzhou Jiang entitled "Towards Characterizing and Exploiting Fine-grained User Behaviors in Mobile System" at the Univeristy of New South Wales.

Walid Dabbous served as reviewer of the PhD thesis of Kim-Hung LE "Mécanismes d'interopérabilité pour les applications industrielles de l'Internet des Objets et la Ville Intelligente", defended on April 1, 2019 at Eurecom, France.

Walid Dabbous served as reviewer of the PhD thesis of Yoann Desmouceaux "Network-Layer Protocols for Data Center Scalability", defended on April 10, 2019 at École Polytechnique, France.

Walid Dabbous served as a member of the recruitment committee for a Professor position at Sorbonne University in April 2019.

Thierry Turletti served as reviewer of Romuald Corbel PhD thesis "Évolution des protocoles de transport du point de vue de l'équité", defended on December 4, 2019 at Université de Rennes 1, France.

Thierry Turletti served as reviewer of Géraldine Texier HDR "Vers un Internet programmable offrant des garanties de qualité de service", defended on December 3, 2019 at Université de Rennes 1, France.

Thierry Turletti served as reviewer of Jean-Michel Sanner PhD thesis "Architecture du plan de contrôle SDN et placement des services réseaux dans les infrastructures des opérateurs", defended on July 23, 2019 at Université de Rennes 1, France.

Thierry Turletti served as examiner of Andrea Tomassilli PhD thesis "Vers un Internet programmable offrant des garanties de qualité de service", defended on June 24, 2019, at UCA, Sophia Antipolis, France.

9.3. Popularization

9.3.1. *Internal or external Inria responsibilities*

Damien Saucez is part of the MASTIC (https://project.inria.fr/mastic) group at Inria. MASTIC groups all the activities for scientific dissemination for Inria Sophia Antipolis.

9.3.2. *Articles and contents*

Walid Dabbous wrote an Interstices article [37] on the occasion of the 50th anniversary of the Internet. The article recalls the story of the first France-ARPAnet connection that was established by Christian Huitema's team in July 1988.

<div align="center">

DIONYSOS Project-Team

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10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

We are organizing the mini-symposium entitled "Probabilistic approaches for studying blockchain dynamics" of the 8th European Congress of Mathematics, 5 - 11 July 2020, Portorož, Slovenia This mini-symposium aims at bringing together international researchers active on blockchain analysis, and allowing the interaction between different expertises: Markov chain, game theory, fluid limits as well as on different types of stochastic processes. It also aims at gather mathematicians using a theoretical approach to analyze blockchain with those characterizing blockchains through simulations or numerical techniques, and thus it will encourage new collaborations.

10.1.1.1. General Chair, Scientific Chair

- Yassine Hadjadj-Aoul was the General Chair for the *The 6th International Conference on Information and Communication Technologies for Disaster Management (ICT-DM'2019)*, Co-sponsored by IEEE, in Paris (France), December 2019.

10.1.1.2. Member of the Organizing Committees

- Gerardo Rubino and Bruno Tuffin are members of the Steering Committee of the International Workshop on Rare Event Simulation (RESIM) and of Monte Carlo Method Conference (MCM) series.

- Yassine Hadjadj-Aoul is member of the Steering Committee of the International Conference on Information and Communication Technologies for Disaster Management (ICT-DM). He is co-chairing the Steering Committee since 2016.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Bruno Tuffin was TPC co-chair of the 14th Workshop on the Economics of Networks, Systems and Computation (NetEcon 2019), June 2019, Phoenix, AZ, USA.

- Yassine Hadjadj-Aoul was TPC co-chair of *The 11th Wireless Days Conference (WD'2019*, Co-sponsored by IEEE, Manchester, April 2019, Manchester, UK.

- Yassine Hadjadj-Aoul was TPC track chair of the "Satellites IoT and M2M Networks" track, for *The 2nd International Conference on Smart Communications and Networking (SmartNets 2019)*, Co-sponsored by IEEE, December 2019, Sharm El Sheik, Egypt.

- Yassine Hadjadj-Aoul was TPC track chair of the "Cloud & Fog Computing" track, for *International Symposium on Networks, Computers and Communications (ISNCC 2019)*, Co-sponsored by IEEE, June 2019, Istanbul, Turkey.

10.1.2.2. Member of the Conference Program Committees

Bruno Tuffin was TPC member of the following conferences:

- ValueTools 2019, Palma de Mallorca, Spain, March 12-15, 2019

- First IEEE Workshop on the ECOnomics of Fog, Edge, and Cloud Computing (ECOFEC 2019), in conjunction with IEEE INFOCOM 2019, Paris, France

- IEEE International Conference on Communications (IEEE ICC 2019), May 20-24 2019, Shanghai, China.

- 12th International Conference on Monte Carlo Methods and Application (MCM 2019), Sydney, Australia, July 8-12, 2019.
- 31th International Teletraffic Congress (ITC 31), 27-29 August 2019, Budapest, Hungary.
- The International Symposium on Ubiquitous Networking (UNet'19), September 16-19, 2019, Limoges, France.
- GECON 2019 - 16th International Conference on Economics of Grids, Clouds, Software, and Services, Leeds, UK, 17-29 Sept. 2019
- The 2019 IEEE 2nd 5G World Forum (5GWF'19), Dresden, Germany, Sept 30-Oct 2, 2019.
- Financial Risk Track, Winter Simulation Conference (WSC'19), National Harbor, MD, USA, December 8-11, 2019.

Patrick Maillé was TPC member of the following conferences:

- ACM MobiHoc 2019, 20th International Symposium on Mobile Ad Hoc Networking and Computing, Catania, Italy, July 2-5, 2019
- IFIP WIOPT 2019, 17th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks, Avignon, France, June 3–7, 2019
- IEEE International Conference on Communications (IEEE ICC 2019), May 20-24 2019, Shanghai, China.
- Algotel 2019, Narbonne, France, June 3-7, 2019
- NetEcon 2019, 14th workshop on the Economics of Networks, Systems and Computation, Phoenix, AZ, USA, June 28, 2019
- GIIS 2019, Global Information Infrastructure Symposium, Paris, France, December 18-20, 2019
- AdHoc-Now 2019, 18th International Conference on Ad Hoc Networks and Wireless, Luxembourg, October 1-3, 2019
- ValueTools 2019, Palma de Mallorca, Spain, March 12-15, 2019

Yann Busnel was a member of the program committee of the following events:

- NCA 2019: 18th IEEE International Symposium on Network Computing and Applications, Boston, USA, September 2019.
- AdHoc Now 2019: 18th International Conference on Ad Hoc Networks and Wireless, Luxembourg, October 2019.

Bruno Sericola was TPC member of the following conference:

- ASMTA 2019 : 25th International Conference on Analytical and Stochastic Modelling Techniques and Applications, Moscow, Russia, October 23 — 25, 2019.

Yassine Hadjadj-Aoul was a member of the program committee of the following events (partial list):

- IEEE Globecom 2019 - IEEE Global Communications Conference, Waikoloa, HI, USA, December 9-13, 2019.
- IEEE ICC 2018 - IEEE International Conference on Communications, Shanghai, China, MO, USA, May 20-24, 2019.
- IEEE WCNC 2019 - IEEE Wireless Communications and Networking Conference, Marrakech, Morocco, April 15-19, 2019.
- IEEE CCNC 2019 - IEEE Consumer Communications & Networking Conference, Las Vegas, USA, January 11-14, 2019.
- IEEE MASCOTS - 2019 - IEEE conference on "Modeling, Analysis, and Simulation On Computer and Telecommunication Systems", Rennes, France, October 22-25, 2019.

Gerardo Rubino was or is a member of the Program Committee of the following events:

- QEST: 16th International Conference on Quantitative Evaluation of SysTems, Glasgow, Scotland, Sep. 2019.
- e-Health: 7th International workshop of e-Health Pervasive Wireless Applications and Services, Lyon, France, Oct. 2019.
- MASCOTS: 28th IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems, Nice, France, Nov. 2020.
- ICN: 19th International Conference on Networks, Lisbon, Portugal, Feb. 2020.

10.1.2.3. Reviewer

Yann Busnel, Bruno Tuffin, Bruno Sericola, Yassine Hadjadh-Aoul, Gerardo Rubino, and César Viho served as reviewers for several major international conferences.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Bruno Tuffin serves as

- Area Editor (simulation): INFORMS Journal on Computing, since Jan. 2015.
- Associate Editor: ACM Transactions on Modeling and Computer Simulation, since July 2009.

Patrick Maillé serves as

- Associate Editor: Electronic Commerce Research and Applications (Elsevier), since April 2019.
- Associate Editor: IEEE Open Journal of Communications Society, since July 2019.

Bruno Sericola serves as associate editor for the following journals:

- International Journal of Stochastic Analysis, since April 2010.
- Performance Evaluation, since April 2015.

Bruno Sericola is Editor in Chief of the books series "Stochastic Models in Computer Science and Telecommunications Networks", ISTE/WILEY, since March 2015.

Yassine Hadjadj-Aoul was a guest editor of a special issue on: "Emerging topics in wireless communications for future smart cities" for the MDPI International Journal.

Gerardo Rubino is Associate Editor of the Journal of Dynamics & Games, https://www.aimsciences.org/journal/2164-6066.

10.1.3.2. Reviewer - Reviewing Activities

- Yann Busnel served as a reviewer for several major international journals such as TPDS (IEEE Transactions on Parallel and Distributed Systems).
- Bruno Sericola, Bruno Tuffin and Gerardo Rubino served as reviewers for several major international journals.
- Yassine Hadjadj-Aoul served as a reviewer for several major international journals such as: IEEE Journal On Selected Area of Communication *JSAC* "Series on Network Softwarization & Enablers", IEEE Transaction on Vehicular Technologies *TVT*, IEEE Communication Letters, IEEE Transaction on Mobile Computing *TMC*, IEEE Access, Elsevier Future Generation Computer Systems *FGCS*, Journal of Network and Computer Applications *JNCA*.

10.1.4. Invited Talks

Bruno Tuffin gave the following invited talks:

- B. Tuffin. Rare-Event Simulation of Regenerative Systems, Peking University, China, October 10, 2019.
- B. Tuffin. Monte Carlo Simulation and Rare Event Estimation, Mathematical and computational modeling of rare events in complex systems, Recife, Brazil, November 18-20, 2019.

Yann Busnel made several invited and keynote talks in 2019:

- *Blockchain Technology : Synchronization, Consensus and Token Economy*. Cycle of seminars as Invited Professor at VJTI Mumbai, India, September 2019.

- *The need for enlightened sampling in the supervision of large-scale networks*. Keynote at the International Conference on Data Sciences and Engineering, IIT Patna, India, September 2019

- *Large-scale data streaming*. Invited seminar at FEIT, University of Technology Sydney, Australia, August 2019

- *Le besoin d'échantillonnage avisé dans la supervision de réseaux à grande échelle*. Invited seminar at Laboratoire I3S de Sophia-Antipolis, France, April 2019

- *Blockchain opportunities in Europe & Diploma certification using the blockchain @ IMT Atlantique*. Invited talk at International workshop on Blockchain for Global Good, VJTI Mumbai, India, March 2019

- *Le besoin d'échantillonnage avisé dans la supervision de réseaux à grande échelle*. Invited seminar at Laboratoire d'Informatique de Grenoble, France, January 2019.

Yassine Hadjadj-Aoul made several invited and keynote talks in 2019:

- *Reliable Network Function Placement using Evolutionary Algorithms*. Invited tutorial during the 8th IEEE International Conference on Smart Communications in Network & Technologies (SaCoNet), Oran, Algeria, Dec. 2019

- *Virtual Network Function Forwarding Graph Embedding in 5G and post 5G Networks*. Invited Keynote during the 8th IEEE International Conference on Smart Communications in Network & Technologies (SaCoNet), Oran, Algeria, Dec. 2019

- *Efficient support of the upcoming Massive number of IoT devices & in future wireless networks*. Invited talk during the national seminar, SEOC Day, on Embedded Systems and Communicating Objects, Paris France, April 2019

Gerardo Rubino made several invited and keynote talks in 2019:

- *Training recurrent Random Neural Networks: first and second-order techniques, reservoir models, numerical aspects*. Invited talk at ISCIS'19, Conference on Modelling Methods in Computer Systems, Networks and Bioinformatics, Polish Academy of Sciences, Paris, Oct. 15–16, 2019.

- *Relations between irreducible and absorbing Markov chains*. Invited talk at the Fall Western Sectional Meeting of the AMS, Riverside, California, November 9–10, 2019.

- *Rare event analysis in technological catastrophes*. Keynote at the 6th International Conference on Information and Communication Technologies for Disaster Management (ICT-DM), Paris, December 18–20, 2019.

Gerardo Rubino gave a seminar at the Computer Science Department of the UDELAR, in Nov. 2019, about Network Tomography. He also gave a 3 hours-tutorial on dependability analysis at the University Adolfo Ibáñez, Santiago, Chile, in Jan. 2019.

10.1.5. Leadership within the Scientific Community

- Bruno Tuffin is an elected member of I-sim council of Informs society, 2018-2020.

- Yann Busnel is a member of the CSV (the technical committee) of the Images and Networks Cluster of Brittany, France.

- Yann Busnel is a member of the Steering Committee of the RESCOM research group at GDR CNRS RSD.

- Yassine Hadjadj-Aoul is a founding member of Special Interests Group "IEEE Sig on Big Data with Computational Intelligence" under the IEEE COMSOC Big Data TC (Since June 2017).

- Yassine Hadjadj-Aoul is a member of the scientific committee of GT ARC (Automatique et Réseaux de Communication) scientific committee (since Nov. 2017).

- Gerardo Rubino belongs to the CSV (the technical committee) of the Images and Networks Cluster of Brittany, France, since its foundation.
- Gerardo Rubino is the coordinator of the research action "Analytics and machine learning", in collaboration with Nokia Bell Labs.

10.1.6. Research Administration

- Yann Busnel is Head of « Network System, Cybersecurity and Digital law » Research Department at IMT Atlantique (2017–*).
- Yann Busnel is Head of « Network, Telecommunication and Services » Research Department (D2) at IRISA (2019–*).
- Bruno Sericola is responsible for the Inria Rennes-Bretagne Atlantique budget.
- Bruno Sericola is the leader of the research group MAPI (Math Appli Pour l'Info) the goal of which is to improve the collaboration between computer scientists and mathematicians.
- Bruno Sericola is member of the research commission of the academic council of University of Rennes 1.
- César Viho is member of the HdR commission of the scientific council of Université Rennes 1.
- César Viho is the director of the MathSTIC doctoral school of Université Bretagne Loire.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Bruno Tuffin, MEPS (probablility, queuing systems, simulation) , 35 hours, M1, University of Rennes 1, France

Master: Bruno Tuffin, GTA (Game Theory and Applications), 15 hours, M2, University of Rennes 1, France

MOOC on Queuing Theory, available on EdX: Patrick Maillé (in charge of one week of class)

IMT Atlantique 1st year: Yann Busnel, Wireless Autonomous Robot Swarm, 9 hours.

IMT Atlantique 3rd year: Yann Busnel, Big Data and Stream Processing, 9 hours.

Licence: Bruno Sericola, Mathematics, 14h, L2, IUT/University of Rennes 1, France.

Master: Bruno Sericola, Mathematics, 12h, M2, Istic/University of Rennes 1, France.

Master: Bruno Sericola, Logistic and performance, 12h, M2, Faculté de sciences économiques, Univ of Rennes 1, France

Master: Bruno Sericola, MEPS (performance evaluation), 36h, M1, Univ Rennes, France

Master M1: César Viho, Networks:Rennes 1 from Services to protocols, 36 hours, Istic/University of Rennes 1, France

Master M2: César Viho, Algorithms on graphs, 40 hours, Istic/University of Rennes 1, France

Bachelor L2: César Viho, Network architecture and components, 16 hours, Istic/University of Rennes 1, France

Master, 2nd year: Yassine Hadjadj-Aoul, Scalable Network Infrastructure (SNI), 10 hours, The Research in Computer Science (SIF) master and EIT Digital Master/University of Rennes 1, France

Master, pro 2nd year: Yassine Hadjadj-Aoul, Multimedia streaming over IP (MMR), 48 hours, Esir/University of Rennes 1, France

Master, pro 2nd year: Yassine Hadjadj-Aoul, Multimedia services in IP networks (RSM), 29 hours, Esir/University of Rennes 1, France

Master, pro 2nd year: Yassine Hadjadj-Aoul, Software Defined Networks, 6 hours, Istic/University of Rennes 1, France

Master, 2nd year: Yassine Hadjadj-Aoul, Video streaming over IP, 8 hours, Istic/University of Rennes 1, France

Master: Yassine Hadjadj-Aoul, Introduction to networking (IR), 26 hours, Esir/University of Rennes 1, France

Master: Yassine Hadjadj-Aoul, Mobile and wireless networking (RMOB), 20 hours, Esir/University of Rennes 1, France

Master 2nd year: Yassine Hadjadj-Aoul, Overview of IoT technologies: focus on LPWAN, 2 hours, INSA, France

Sofiene Jelassi is the manager of the master program "Heterogeneous Networks and Systems", Istic/University of Rennes 1, France

Master pro 2nd year: Sofiene Jelassi, Supervision of heterogeneous networks, 32 hours, Istic/University of Rennes 1, France

Master pro 2nd year: Sofiene Jelassi, Cloud & SDN virtualization, 32 hours, Istic/University of Rennes 1, France

Master pro 2nd year: Sofiene Jelassi, Multimedia networks, 32 hours, Istic/University of Rennes 1, France

Bachelor L1: Sofiene Jelassi, Programming Algorithms, 12 hours, SPM/University of Rennes 1, France

Master, 2nd year: Gerardo Rubino, Scalable Network Infrastructure (SNI), 10 hours, The Research in Computer Science (SIF) master and EIT Digital Master/University of Rennes 1, France

Supelec Rennes 3rd year: Gerardo Rubino, Dependability Analysis, 15 hours.

Master 2nd year: Gerardo Rubino, Quality of Experience, 2×4 hours (two different groups of students), Esir/University of Rennes 1, France

Esir/University of Rennes 1, 1st year, Graph theory and algorithms, 20 hours.

10.2.2. Supervision

PhD in progress: Ximun Castoreo, Measurements to check network neutrality, University of Rennes 1, Started 10/2018, supervised by Bruno Tuffin.

PhD in progress: Ayman Chouayakh, Auctions for spectrum allocations in 5G, CIFRE Thesis with Orange Labs/University of Rennes 1, Started 03/2017, supervised by Patrick Maillé.

PhD in progress: Hiba Dakdouk, Multi-player multi-armed bandit problems and applications in IoT, CIFRE Thesis with Orange Labs/University of Rennes 1, Started 01/2019, supervised by Patrick Maillé.

PhD in progress: Vasile Cazacu, "Calcul distribué pour la fouille de données cliniques", IMT Atlantique. Advisors: E. Anceaume (CNRS Rennes), Y. Busnel and M. Cuggia (PUPH, CHU Rennes). Defense in 2020.

PhD in progress: Jérôme Henry, "Indoor localization using the most recent standards of 802.11", IMT Atlantique. Advisors: N. Montavont (IMT Atlantique), Romaric Ludinard (IMT Atlantique), Y. Busnel (IMT Atlantique). Defense in 2021.

PhD in progress: Anouar Rkhami, "Data analytics for optimized resources' management in future 5G networks"; started on Oct. 2018; Advisors: Gerardo Rubino and Yassine Hadjadj-Aoul, and Abdelkader Outtagarts, Inria – Nokia Bell labs.

PhD in progress: Imane Taibi, "Big data analysis for network monitoring and troubleshooting"; started on Nov. 2017; Advisors: Gerardo Rubino, Chadi Barakat and Yassine Hadjadj-Aoul, Inria.

PhD in progress: Ali Hodroj, Enhancing content delivery to multi-homed users in broadband mobile networks, started in November 2015; supervisors: Bruno Sericola, Marc Ibrahim and Yassine Hadjadj-Aoul, University Rennes 1 and St Joseph University of Beyrouth.

PhD in progress: Mohamed Rahali, "Machine learning-based monitoring and management for hybride SDN networks"; started on Oct. 2017; Advisors: Gerardo Rubino, Inria, and Jean-Michel Sanner, B-COM.

Post-doc in progress: Noël Gillet, "Analyse de flux de données large-échelle pour les données massives en santé", IMT Atlantique. Advisor: Y. Busnel. October 2018-September 2019.

Post-doc in progress: Frédérique Robin, Modelling the dynamic behaviour of blockchains and analyzing their performance, Inria Rennes. Supervisors: Bruno Sericola and Emmanuelle Anceaume from team Cidre.

PhD: Corentin Hardy, Contribution to the development of deep learning in distributed systems, Defense in April 2019. Supervisors: Bruno Sericola and Erwan Le Merrer from Technicolor.

PhD: Jean-Michel Sanner; Cifre Grant, Orange Labs, "SDN technologies for network services performances adaptation of carriers networks", Defense in July 2019. Supervisors: Yassine Hadjadj-Aoul and Gerardo Rubino.

PhD: Hamza Ben Ammar, "Network and cache resources optimization for efficient media content delivery in CCN", Defense in March 2019; advisors: Yassine Hadjadj-Aoul, Gerardo Rubino and Soraya Ait Chellouche, University Rennes 1 [12].

PhD: Laura Aspirot, "Fluid Approximations for Stochastic Telecommunication Models", University of the Republic, Uruguay. Advisors: E. Mordecki (Uruguay) and G. Rubino (France). Defended on November 21, 2019, [11].

PhD: Jorge Graneri, "Semantic cognition - A mathematical approximation.", University of the Republic, Uruguay. Advisors: E. Mizraji (Uruguay) and G. Rubino (France). Defended on November 22, 2019, [13].

PhD in progress: Illyyne Saffar, "Personalization for Cognitive Autonomic Networks in 5G"; started on Feb. 2017; Advisors: César Viho (Université Rennes 1) and Kamal Deep-Singh (UJM Saint-Etienne) and Marie Line Alberi-Morel (Nokia Bell labs), Université Rennes 1 and Nokia Bell labs. Defense in June 2020.

10.2.3. Juries

Gerardo Rubino was one of the reviewers of the PhD of Fetia Bannour, Software Defined Networking: Extending SDN control to large-scale networks, University of Paris-East, Paris, Nov. 19, 2019.

Bruno Tuffin was rapporteur for the PhD of Wael Labidi, Smart grid-aware radio engineering in 5G mobile networks. Université de Paris-Saclay, Télécom SudParis, March 2019.

Patrick Maillé was a member of the PhD jury of Lilian Besson, Multi-Players Bandit Algorithms for Internet of Things Networks, Supelec Rennes, November 2019

Yann Busnel was rapporteur of the PhD defense committee of Abderrahmen Kammoun, Université Jean Monnet, Saint- Etienne, July 2019.

Yassine Hadjadj-Aoul was a member of the PhD jury of Ghada Moualla, Resilient Virtualized Network Functions for Data Centers and Decentralized Environments, Côte d'Azur University, September 2019

Bruno Sericola was member of the final selecting board for the recruitment of CNRS researchers in 2019.

César Viho was President of the HDR jury of Geraldine Texier, Vers un Internet programmable offrant des garanties de qualité de service, IMT-Atlantique Rennes, December 2019.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Yann Busnel is member of Development Council of Computer Sciences Master at Université de Nantes (2017–*).

10.3.2. Interventions

G. Rubino makes regular presentations to high school students about the research work in general, and specific technical topics in particular. Current talks:

- Randomness as a tool
- Internet as a research problem
- Great challenges in maths: the Riemann Hypothesis
- Great challenges in math/computer science: the "P versus NP" problem

<p style="text-align:center">**DIVERSE Project-Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Mathieu Acher was the program committee co-chair of the 14th International Working Conference on Variability Modelling of Software-Intensive Systems (VaMoS)

9.1.1.2. Member of the Organizing Committees

Olivier Barais was the financial chair of the IEEE Mascots conference.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Mathieu Acher organized the Fourth international workshop on software product line teaching (SPLTea 2019).
- Mathieu Acher organized the First international workshop on languages for modelling variability (MODEVAR 2019).
- Mathieu Acher organized the Seventh international workshop on reverse variability engineering (REVE 2019).
- Mathieu Acher organized the 3rd ACM SIGSOFT International Workshop on Machine Learning Techniques for Software Quality Evaluation, MaLTeSQuE@ESEC/SIGSOFT FSE 2019.

9.1.2.2. Member of the Conference Program Committees

Jean-Marc Jézéquel:

- PC member for SPLC 2019 Industry Track
- PC member for SEAMS 2019
- PC member for ICSE 2020

Olivier Barais:

- PC member for the 17th International Conference on Software Engineering and Formal Methods (SEFM 2019)
- PC Member for CIEL 2019
- PC Member for VaMoS 2019
- PC Member for VoSE 2019
- PC Member for SAC 2019, SATTA track - Software Architecture: Theory, Technology, and Applications
- PC Member for CCgrid 2020

Djamel E. Khelladi:

- PC member for Poster track at MODELS 2019
- PC member for REVE workshop 2019
- PC member for Models and Evolution (ME) Workshop 2019
- PC member for WETICE 2019 Validating Software for Critical Systems Track

Arnaud Blouin:

- PC member for SAC'2020
- PC member for PACM EICS Q4 2019
- PC member for Workshop on Human Factors in Modeling at MODELS'2019 (HuFaMo), 2019

Mathieu Acher:

- PC member for SPLC 2019 Research Track
- PC member for ICSE SEIP 2020
- PC member for VaMoS 2019

Benoit Combemale:

- PC chair (Foundation track) for ECMFA 2019
- PC member for ICMT'19
- Selection Committee member for the Doctoral Symposium at MODELS'19
- PC member for the MLE'19 workshop at MODELS'19
- PC member for the DevOps@MODELS'19 workshop at MODELS'19
- PC member for the FlexMDE'19 workshop at MODELS'19
- PC member for the PNSE'19 workshop

9.1.2.3. Reviewer

Olivier Barais: MASCOTS 2019, ICSE 2019, ASE 2019
Arnaud Blouin: ICSE 2019, ISSTA 2019
Johann Bourcier: SEAA 2019
Mathieu Acher: TSE 2019, JSS 2019, ICSE 2019

9.1.3. *Journal*

9.1.3.1. Member of the Editorial Boards

Jean-Marc Jézéquel:

- Associate Editor in Chief of SOSYM
- Associate Editor in Chief of IEEE Computer
- Associate Editor of JSS
- Associate Editor of JOT

Benoit Combemale:

- Deputy Editor-in-Chief of JOT
- Member of the Editorial Board of the Springer Journal on Software and Systems Modeling (SoSyM)
- Member of the Editorial Board of the Elsevier Journal of Computer Languages (COLA)
- Member of the Editorial Board of the Springer Journal of Software Quality
- Member of the Advisory Board of the Elsevier Journal on Science of Computer Programming (SCP, Software Section)

9.1.3.2. Reviewer - Reviewing Activities

Olivier Barais:

- Journal of Software and System Modeling (SoSyM)

Djamel E. Khelladi:

- Journal of Software and System Modeling (SoSyM)

Arnaud Blouin:

- Journal of Software and System Modeling (SoSyM)
- Journal of Visual Languages and Computing (JVLC)
- Proceedings of the ACM for EICS 2019 and 2020 (PACM-EICS)

Mathieu Acher:

- Transactions on Software Engineering (TSE)
- Journal of Systems and Software (JSS)
- Editor with Myra B. Cohen of the Special issue on systems and software product line engineering. Journal of Systems and Software (JSS) 154: 110-111 (2019).

Benoit Combemale:

- Journal of Software and System Modeling (SoSyM)
- Journal of Empirical Software Engineering (ESE)

9.1.4. Invited Talks

Jean-Marc Jézéquel:

- *Keynote speech Models@Runtime workshop associated to MODELS2019*

Djamel E. Khelladi:

- Talk at the *IPA Fall Days* in Wageningen, Netherlands.

Johann Bourcier:

- Talk at the UBS university in Vannes, France.

Benoit Combemale:

- *Smart Modeling: On the Convergence of Scientific and Engineering Models*, Invited talk at Lancaster university, UK (14/11/19).
- *Bringing Intelligence to Sociotechnical IoT Systems: Modeling Opportunities and Challenges*, Keynote at MDDE4IoT'19, DE (15/09/19).
- *Breathe Life Into Your IDE*, Talk at LangDev'19, NL (22/03/19).

9.1.5. Leadership within the Scientific Community

Jean-Marc Jézéquel is an elected member of the Board of *InformaticsEurope*.

Benoit Combemale:

- Chair of the Steering committee of the ACM SIGPLAN conference SLE
- Founding member and member of the advisory board of the GEMOC initiative.
- Chair of the Eclipse Research Consortium GEMOC and the Eclipse Project GEMOC Studio.

Mathieu Acher:

- Member of the Steering committee of SPLC conference

Arnaud Blouin: founding member and co-organiser of the French GDR-GPL research action on Software Engineering and Human-Computer Interaction (GL-IHM).

9.1.6. Scientific Expertise

Olivier Barais is an external expert for the H2020 ENACT project. Olivier Barais provides scientific expertises for DGRI international program (20 proposals per year).

9.1.7. Research Administration

Jean-Marc Jézéquel is Director of IRISA (UMR 6074). He is Coordinator of the academic club of the French Cyber-defense Excellence Cluster, and Director of the Rennes Node of EIT Digital.

9.2. Teaching - Supervision - Juries

9.2.1. *Teaching*

The DIVERSE team bears the bulk of the teaching on Software Engineering at the University of Rennes 1 and at INSA Rennes, for the first year of the Master of Computer Science (Project Management, Object-Oriented Analysis and Design with UML, Design Patterns, Component Architectures and Frameworks, Validation & Verification, Human-Computer Interaction) and for the second year of the MSc in software engineering (Model driven Engineering, Aspect-Oriented Software Development, Software Product Lines, Component Based Software Development, Validation & Verification, *etc.*).

Each of Jean-Marc Jézéquel, Noël Plouzeau, Olivier Barais, Johann Bourcier, Arnaud Blouin, and Mathieu Acher teaches about 200h in these domains, and Benoit Combemale teaching about 100h, for a grand total of about 1300 hours, including several courses at ENSTB, Supelec, ENS Rennes and ENSAI Rennes engineering school.

Olivier Barais is deputy director of the electronics and computer science teaching department of the University of Rennes 1. Olivier Barais is the head of the final year of the Master in Computer Science at the University of Rennes 1. Johann Bourcier is the head of the Information Technology department and member of the management board at the ESIR engineering school in Rennes. Arnaud Blouin is in charge of industrial relationships for the computer science department at INSA Rennes and elected member of this CS department council.

The DIVERSE team also hosts several MSc and summer trainees every year.

Mathieu Acher gave courses to EJCP (Ecole Jeune Chercheur en Programmation), a well-known, national training school for PhD students http://ejcp2019.icube.unistra.fr/

9.2.2. *Supervision*

- PhD in progress: Alejandro Gomez Boix, *Distributed counter-measure against browser fingerprinting*, 2016, B. Baudry, D. Bromberg.
- PhD in progress: Jean-Émile Dartois, *Efficient resources management for hybrid cloud computing*, 2016, O. Barais, Jalil Boukhobza.
- PhD in progress: Alexandre Rio, *Demand Side Management A model driven approach to promote energy self-consumption* , 2016, O. Barais, Y. Morel
- PhD in progress: Dorian Leroy, *A generic and generative white-box testing framework for model transformations*, 2017, B. Combemale.
- PhD in progress: Fabien Coulon, *Web engineering for domain-specific modeling languages*, 2017, B. Combemale, S. Begaudeau.
- PhD in progress: June Benvegnu-Sallou, Decision support for the assessment of risks associated with the operation of underground environments, 2018, J-R. De dreuzy, B. Combemale, J. Bourcier.
- PhD in progress: Pierre JeanJean, *Refining simulators by analyzing execution traces of complex systems*, 2018, O. Barais, B. Combemale.
- PhD in progress: Alif Akbar-pranata, *Chaos Engineering for IoT and Network Services*, 2018, O. Barais, J. Bourcier.
- PhD in progress: Antoine Cheron, *Abstractions for linked data and the programmable web*, 2018, O. Barais, J. Bourcier.
- PhD in progress: Gauthier Lyan, *Urban mobility: machine learning for building simulators using large amounts of data*, 2018, J-M. Jééquel, D. Gross Amblard.
- PhD in progress: Hugo Martin, *Learning variability*, 2018, M. Acher.
- PhD in progress: Luc Lesoil, *Deep variability in large-scaled systems*, 2019, M. Acher. A. Blouin, JM Jézéquel.

- PhD in progress: Emmanuel Chebbi , *Domain-Specific Language Reuse*, 2019, B. Combemale, Olivier Barais, G. Leguernic
- PhD in progress: Mohamed Handaoui, *Scheduling Big Data applications in the cloud: the case of machine learning algorithms*, 2019, Jalil Boukhobza. Olivier Barais.
- PhD in progress: Romain Lebouc, *Testing front-ends in a DevOps context*, 2019, Arnaud Blouin, Noël Plouzeau, Alain Ribault.
- PhD : Manuel Leduc, *Formal and Executable Specification of domain-specific language families*, dec 2019, O. Barais, B. Combemale, G. Leguernic
- PhD : Youssou NDiaye, *Modelling and evaluating security of authentication paths*, dec 2019, N. Aillery, O. Barais, A. Blouin, A. Bouabdallah
- PhD: Ludovic Mouline, *Omniscient fault localization in IOT systems using model-driver data analytics*, nov 2019, O. Barais, Y. Le-Traon, J. Bourcier [23]
- PhD: Oscar Luis, *Automatic test amplification*, dec 2019, B. Baudry
- PhD: Manuel Leduc, *On modularity and performances of external domain-specific language implementations*, dec 2019, B. Combemale, O. Barais
- HdR : Arnaud Blouin, Contribution to the Engineering of User Interfaces, Univ Rennes, 30/08/2019 [22]

9.2.3. Juries

9.2.3.1. Jean-Marc Jézéquel

was in the examination committee of the following PhD and HDR thesis:

- Yoann Blein, April 2019, Univ Grenobles Alpes (Examiner)
- Jorge Roda, December 2019, Univ Sevilla (Examiner)
- Emilien Lavigne, December 2019, Univ Bretagne Occidentale (President)

9.2.3.2. Olivier Barais

was in the examination committee of the following PhD and HDR thesis:

- Benjamen Benni, December 2019, Univ Nice (Reviewer)
- Ludovic Mouline, November 2019, Univ Luxembourg (Supervisor)
- Leduc Manuel, December 2019, Univ Rennes (Supervisor)
- Ndiaye Youssou, December 2019, Univ Rennes (Supervisor)
- Davide Frey, December 2019, Univ Rennes (President)
- Hanyang CAO, February 2019, Univ Bordeaux (Reviewer)

9.2.3.3. Arnaud Blouin

was in the examination committee of the following PhD thesis:

- Youssou Ndiaye, December 2019, Univ Rennes (Supervisor)

9.2.3.4. Mathieu Acher

was in the examination committee of the following PhD thesis:

- Frederic Verdier, December 2019, Univ Montpellier (Examiner)

9.2.3.5. Johann Bourcier

was in the examination committee of the following PhD thesis:

- Ludovic Mouline, November 2019, Univ Luxembourg (Supervisor)

9.2.3.6. Benoit Combemale

was in the examination committee of the following PhD thesis:

- Théo Zimmermann, Univ Paris (December 2019), (Reviewer)
- Manuel Leduc, Univ Rennes 1 (December 2019), (Supervisor)

9.3. Popularization

9.3.1. Interventions

- STAMP - Orange Test and Dev Day, Grenoble, France - Nov 2019
- STAMP - Eastern Paris Dev Meetup, Lunatech, Chessy, France - Jul 2019
- STAMP Breakout Session & Talks - OW2con'19, Orange Gardens, Paris Châtillon - Jun 2019
- STAMP Workshop for EC-DGIT (European Commission DGIT) - Brussels - May 2019
- STAMP - Devoxx Paris - Apr 2019
- STAMP & CI testing automation - BreizhCamp 2019 - Mar 2019
- STAMP Talk and Workshop - Station-F, Paris - Feb 2019
- Tech talk at Alten - Rennes - Dec 2019
- Tech talk at Harmonic - Cesson-Sévigné - Oct 2019
- Tech talk at Veonum - Rennes - Sep 2019
- Tech talk at Nokia - Rennes - Jun 2019
- Tech talk at OrangeLabs : Hands-on Workshop - Cesson-Sévigné - May 2019
- Tech talk at Solocal and Kereval - Rennes - Mar 2019
- Tech talk at FaberNovel - Test amplification - Mar 2019
- Sciences de l'Ingénieur au féminin - Lycée Sévigné, Cesson-Sévigné - Nov 2019
- *J'peux pas j'ai informatique* - Inria, Rennes - Apr 2019
- *Petit-déjeuenr des métiers* - Lycée Sévigné, Cesson-Sévigné - Mar 2019 (je ne suis pas sure de la date)
- Devoxx 2019 - Les APIs hypermedia expliquées simplement (17-19 avril 2019) ("While web pages are full of hyperlinks and hypermedia, web APIs are not. However, augmenting web APIs with links is at the core of the REST architectural style, but only 5% of APIs actually do it. That's right, only 5%, despite most people saying that they provide RESTful APIs. In this talk, we discuss what an hypermedia-powered API looks like, what problems of distributed systems integration and composition it can solve and what it would change in frontend code to have such APIs.
- Embedded Linux conference Europe [54] – Given a configuration, can humans know in advance the size, the compilation time, or the boot time of a Linux kernel? Owing to the huge complexity of Linux (there are more than 15000 options with hard constraints and subtle interactions), machines should rather assist contributors and integrators in mastering the configuration space of the kernel. In this talk, we introduce TuxML an OSS tool based on Docker/Python to massively gather data about thousands of kernel configurations. Mathieu will describe how 200K+ configurations have been automatically built and how machine learning can exploit this information to predict properties of unseen Linux configurations, with different use cases (identification of influential/buggy options, finding of small kernels, etc.) The vision is that a continuous understanding of the configuration space is undoubtedly beneficial for the Linux community, yet several technical challenges remain in terms of infrastructure and automation.
- API Days - Backend is the new frontend (9-11 décembre 2019)

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DYOGENE Project-Team

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10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

In collaboration with M. Vojnovic (London School of Economics), A. Busic and L. Massoulié organized an international workshop on Machine Learning and User Decision Making https://ml-udm.github.io/ at the ENS on May 23-24, 2019.

10.1.1.1. Member of the Organizing Committees

Members of Dyogene (co-)organized the following events:

- ERC inaugural workshop *Processus ponctuels et graphes aléatoires unimodulaires*https://project. inria.fr/ercnemo/fr/presentation/,

- Scientific session *Modélisation et analyse des systèmes de vélo-partage* at RFTM2019 (2emes Rencontres Francophones Transport et Mobilité, 11-13/06/2019 Montréal); https://symposia.cirrelt. ca/RFTM2019/

- A. Busic: co-lead (with E. Hyon, LIP 6) of the research group COSMOS (Stochastic optimization and control, modeling and simulation) of the GDR-RO; http://gdrro.lip6.fr/?q=node/78. Includes scientific organization of a one-day workshops per year (approx. 50 participants); In 2019: 8th GDT COSMOS workshop: "Stochastic Optimization and Reinforcement Learning"; November 2019; http://gdrro.lip6.fr/?q=node/211

- A. Busic: one week workshop "Flexible operation and advanced control for energy systems" within INI Cambridge program "The mathematics of energy systems", January 2019, Cambridge, UK, https://www.newton.ac.uk/event/mesw01

10.1.2. Journal

10.1.2.1. Reviewer - Reviewing Activities

All members of the team act as reviewers for numerous scientific journals.

10.1.3. Invited Talks

- Mathematics Colloquium at *Paris-Descartes*, November 2019, F. Baccelli (talk on high dimensional stochastic geometry);

- Mathematics Colloquium at *Karlsruhe Institute of Technology*, July 2019, F. Baccelli (talk on unimodular dimensions);

- Invited lecture at the workshop *Modern Applied Probability, in celebration of Sergey Foss' 65th birthday*, ICMS, Edinburgh, May 2019 F. Baccelli (talk on particle systems); https://www.icms.org. uk/sergey65.php

- Invited lecture at the workshop *Point processes in space, time, and beyond*, Aalborg University, May 2019 F. Baccelli (talk on random graphs); http://people.math.aau.dk/~rw/PointSpaceBeyond/

- Mathematics Colloquium at *Institut Elie Cartan de Lorraine*, April 2019 F. Baccelli (on unimodular random metric spaces);

- Colloquium at **CEA LETI**, Grenoble, January 2019, F. Baccelli (talk on wireless stochastic geometry);

- Training School on Machine Learning for Communications, ISEP, Paris, B. Błaszczyszyn; https:// sites.google.com/view/mlc-training-school/

- "STAR workshop on random graphs", Groningen Netherlands, B. Błaszczyszyn; http://www.math.rug.nl/~hansen/STAR2019/

- invited talk in the Department of Statistics and Data Science Yale University, September 2019, M. Lelarge;

- Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, April 2019, A. Busic (on grid balancing through distributed control of flexible loads) ; video: https://www.newton.ac.uk/seminar/20190502143015301

- Simons Institute, UC Berkeley, June 2019, A. Busic (on optimizing mean-field dynamics for distributed control of flexible loads)

- Journées Scientifiques Inria, Lyon, June 2019, A. Busic (Optimisation/contrôle dans des réseaux électriques)

- CWI – Inria workshop, September 2019, Ana Busic (Optimizing mean-field dynamics for flexible loads control in power systems)

- CMAP seminar, École Politechnique, December 2019, A. Busic (on optimal control in dynamic matching systems)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Licence: B. Błaszczyszyn (Cours) Théorie de l'information et du codage 24 heqTD, L3, ENS Paris.

- Licence: A. Busic (Cours) and S. Samain (TD) Structures et algorithmes aléatoires 60heqTD, L3, ENS Paris.

- Licence: L. Massoulié (Cours) Social and Communication networks 60heqTD, L3, l'X.

- Master: B. Błaszczyszyn (Cours) Processus ponctuels, graphes aléatoires et géeométrie stochastique 39heqTD, M2 Probabilités et Modèles Aléatoires, UPMC.

- Master: A. Busic (Cours) and L. Stephan (TD) Modèles et algorithmes de réseaux 60heqTD, M1, ENS Paris.

- Master: A. Busic (Cours) Fondements de la modélisation des réseaux 18 heqTD, M2 MPRI.

- Master: M. Lelarge (Cours) Deep Learning Do it Yourself, M1, ENS Paris. X, X-HEC https://mlelarge.github.io/dataflowr-web/

- Master: M. Lelarge (Cours) Deep Learning Do it Yourself, M1, ENS Paris.

- Master: L. Massoulié (Cours) Inference in large random graphs, M2 Université d'Orsay.

- Summer school: M. Lelarge (Cours) HANDS-ON TOUR TO DEEP LEARNING WITH PYTORCH, https://mlelarge.github.io/dataflowr-web/cea_edf_inria.html.

- Invited mini-course: L. Massoulié at Journée spéciale Stat Math 2019 of Société Française de Statistiques, Institut Henri Poincaré.

10.2.2. Supervision

- PhD: Léo Miolane, "High dimensional statistics", defended in 2019, advised by M. Lelarge. [2]

- PhD: Md Umar Hashmi, "Decentralized control for renewable integration in smartgrids", defended in 2019, advised by A. Busic. [1]

- PhD in progress: Alexis Galland, Deep Learning on Graphs, since 2017, advised by M. Lelarge.

- PhD in progress: Quentin Le Gall "Crowd networking : modélisation de la connectivité D2D" since October 2017; PhD CIFRE co-advised by B. Błaszczyszyn and E. Cali (Orange).

- PhD in progress: Antoine Brochard "Signal processing for point processes and statistical learning for telecommunications", since September 2018; PhD CIFRE co-advised by B. Błaszczyszyn and Georgios Paschos (Huawei).

- PhD in progress: Sébastien Samain, "Monte Carlo methods for performance evaluation and reinforcement learning", since November 2016, advised by A. Busic,

- PhD in progress: Arnaud Cadas, "Dynamic matching models", since October 2017, supervised by A. Busic.

- PhD in progress: Michel Davydov, since September 2019, F. Baccelli.

- PhD in progress: Luca Ganassali, since September 2019.

- PhD in progress: Hadrien Hendrikx, since 2019

- PhD in progress: Sayeh Khaniha, form 2019, supervised by F. Baccelli.

- PhD in progress: Edouard Pineau, since 2019,

- PhD in progress: Bharath Roy, since 2019, supervised by F. Baccelli and B. Błaszczyszyn,

- PhD in progress: Ilia Shilov, since 2019, supervised by A. Busic,

- PhD in progress: Ludovic Stephan, since 2019.

10.2.3. *Juries*

- F. Baccelli: PhD reviewer of **Gourab GHATAK**, Télécom Paris; HDR reviewer of **Marios KOUN-TOURIS**, Université Paris-Sud 1; HDR jury member of **Raphaël LACHIEZE-REY**, Université Paris-Descartes.

- B. Blaszczyszyn: PhD reviewer of: **Sanjoy Kumar JHAWAR**, Indian Institute of Science Bangalore, India; **Arnaud POINAS**, Université de Rennes 1; HDR reviewer of: **Marious KOUN-TOURIS**, Université Paris-Sud 1; PhD jury member of : **Jalal RACHAD**, Télécom Paris.

- C. Fricker: PhD reviewer of: **Celine COMTE**, Université Paris-Saclay; PhD jury member of: **Hamza BEN AMMAR**, Université de Rennes 1.

- M. Lelarge: PhD jury member Xiaoyi MAI, Université Paris-Saclay.

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EASE Project-Team

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9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

The E4SE team has been involved from the beginning with the City of Rennes in the design of the inOut event and its experts comitee. inOut is an innovative initiative at the service of new mobility solutions. After holding a first event in March 2018, inOut returned to Rennes in 2019 from 28 to 31 March and will happen again next years. The two-day [IN]door business event, followed by an [OUT]door event open to the general public for the entire weekend, gathers together mobility businesses and users to debate, test, and explore new mobility solutions. At the crossroads of digital technologies and mobilities, inOut seeks to bring out the best these two worlds have to offer by providing a space of discussion and debate, where topics and concepts are unpicked and decoded, and different ideas converge. In addition to the expert-focused [IN] part of the event which targets mobility professionals from all over the world, there is also an [OUT] section that invites the general public to take a weekend to explore and discover this topic of new mobilities. Field tests and experimentations are also conducted as part of inOut to support start-ups, businesses and manufacturers and to encourage them to explore what the future holds.
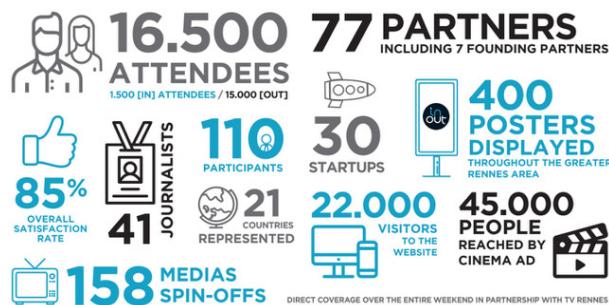

Figure 4. inOut 2019 in figures

inOut is not only an event and we built in with experimentation at the heart of the innovation approach. It has a life beyond the event. It offers an ecosystem of new mobility solutions throughout the year. Experiments, demonstrations, hackathons, and academic challenges get students, researchers, start-ups, and users involved. The call for experiments encourages entrepreneurs and academics to create and test innovations all along the year. An inOut experimentation is conducted in an open-air laboratory: the city of Rennes places its streets and facilities at the disposal of start-ups and companies so that they can test the digital technologies of the city of tomorrow. It aims to provide a response to the need for innovation in communities, to upgrade and develop business sectors, to improve the appeal of the region (companies and universities) for companies and research projects.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

- PC member of VTC 2019, ICIN 2019, ICON 2019, VEHITS 2020, ICCVE 2019, 3ICT 2019, JM. Bonnin
- PC member of eHPWAS 2019, AdHoc Now 2020, F. Weis

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

- IEEE Communication Magazine, JM. Bonnin and C. Couturier
- IEEE Access, Wireless Communication and Mobile Computing, The Computer Journal, Transactions on Mobile Computing, Vehicular communications, Journal of sensors, JM. Bonnin
- IEEE Computer, F. Weis

9.1.4. Invited Talks

- Presentation at Security Days @ IRISA, JM Bonnin
- Round table at InOut 2019, JM Bonnin
- Presentation of the EASE activity around Mobile Data collection in Smart City at South West Aboriginal Medical Service, JM Bonnin

9.1.5. Scientific Expertise

- Head of the scientific committee of InOut 2019, JM. Bonnin
- Member of the scientific council of the GIS ITS, JM. Bonnin
- Member of the scientific council the Id4Car cluster, JM. Bonnin
- Scientific advisor of the YoGoKo startup, JM. Bonnin
- Scientific advisor for an INRA team (Unité Expérimentale Ecologie et Ecotoxicologie Aquatiques) on fish tracking issues using LF RFID, P. Couderc
- Co-head of "the pole Digital Society of the MSHB" (Maison des Sciences de l'Homme de Bretagne), JM. Bonnin
- Project evaluation for ANR, Belgium, Id4Car, Région Pays de la Loire, Région Grand Est, JM. Bonnin
- Expert for CSV board of "Pôle Images et Réseaux", projects reviewing and selection, strategic roadmap definition, P. Couderc

9.1.6. Research Administration

- Head of the Networks, Telecommunication and service department at IRISA, JM. Bonnin until Nov 2019
- Member for the IRISA Laboratory Council, JM. Bonnin
- Member of the scientific council of ECAM (Engineering school), JM. Bonnin

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- L2/L3: network computing (lectures, tutorials, labs), 250 hours, F. Weis, Univ. Rennes 1
- Master 2: Wireless LANs, F. Weis, 30 hours, M2, IMT Atlantique
- Master 2: Pervasive computing and IoT system architectures, 4 hours, P. Couderc, Univ. Rennes 1
- Master 1: Network programming (lectures, tutorial, labs), 78 hours, Y. Maurel, Univ. Rennes 1

- L3/M2: network communications protocol for building automation (lectures, labs), 80 hours, Y. Maurel

- Master 2: Software engineering (lectures, tutorial, labs), 82 hours, Y. Maurel

- Master 2 : Mobility management in the Internet, JM. Bonnin, IMT Atlantique

- Master 2 Smart Mobility : Communications for ITS, JM. Bonnin, IMT Atlantique

- Master 2 IoT: Smart City, JM. Bonnin, ENSI Tunis

- Continuous training: Communications for Autonomous and Cooperative vehicle, Communications for ITS, JM. Bonnin, IMT Atlantique

- Master 1: Network programming (lab and project), 72 hours, C. Couturier, IMT Atlantique

- Master 1: IP networks (lectures, tutorial), 24 hours, C. Couturier, IMT Atlantique

- Master 2: Enterprise Network Design, 12 hours, C. Couturier, IMT Atlantique

- Master 2: Bid to Call for Tender, 12 hours, C. Couturier, IMT Atlantique

- Master 2: Supervision of the Networking and Telecom curriculum of FIP3A, C. Couturier, IMT Atlantique

- Master 2: Tools for cloud computing , 18 hours, C. Couturier, IMT Atlantique

9.2.2. *Supervision*

PhD in progress: Indra Ngurah, Car-based Data Collection for Low Energy Devices (Car-based DC4LED), May 2016, Jean-Marie Bonnin

PhD in progress: Alexandre Rio, "Modélisation des activités de site consommateur d'énergie", Octobre 2016, Olivier Barais (UR1) and Yoann Maurel

PhD in progress: Rodrigo Silva, "Mécanisme de décision multi-critères pour le placement de flux en environnement hétérogène et changeant", Nov. 2015, Jean-Marie Bonnin

PhD in progress: Nejm Frigui, "Maintenance autonomique du réseau programmable d'accès optiques de très haut débit", Jan. 2016, Jean-Marie Bonnin

9.2.3. *Juries*

PhD: Mohammad Irfan Khan, "Multi-Service Resource Orchestration for Vehicular Safety Communication", Jean-Marie Bonnin, referee Dec 2019

<h1 style="color:red; text-align:center">EVA Project-Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organization

10.1.1.1. General Chair, Scientific Chair

- **Thomas Watteyne** is TPC co-chair of the 6th International Workshop on Computer and Networking Experimental Research using Testbeds (CNERT), held in conjunction with IEEE INFOCOM, Paris, France, 29 April-2 May, 2019. More information at https://infocom2019.ieee-infocom.org/cnert-computer-and-networking-experimental-research-using-testbeds.

- **Paul Muhlethaler** was general co-chair with Eric Renault of the second conference of application of Machine Learning for Networks (MLN 2019 3-5 December 2019), a conference hosted by Inria Paris. Two tutorials and two keynotes were given:
    - *Cloud Solution Architect (Artificial Intelligence and Machine Learning)* by Franck Gaillard (Microsoft, France) [tutorial 1].
    - *Towards intelligent mobile networks* by Marie Line Alberi Morel (NOKIA Bell Lab, France) and Kamal Singh (Télécom Saint-Etienne / University Jean Monnet, France) [tutorial 2].
    - *From Learning to Reasoning : A topos perspective* by Jean-Claude Belfiore (Huawei, France) [keynote 1].
    - *Paradigm shifts in communication networks: cloud-native, automation and AI/ML* by Alberto Conte (NOKIA Bell Labs, France) [keynote 2]

  Thirty two technical presentations have been given during the three days of the MLN 2019 conference.

- **Pascale Minet** was general co-chair with Leila Saidane from ENSI (Tunisia) of the PEMWN 2019 conference, the 8th IFIP/IEEE international conference on Performance Evaluation and Modeling of Wired and Wireless Networks, technically co-sponsored by IFIP WG6.2 and IEEE ComSoc. This conference was held in Paris (Inria Research Center), the 26th, 27th and 28th of November 2018. Three tutorials were given:
    - *Information Centric Networks: Toward an Internet of Named Objects* by Andrea Araldo, Telecom Sud-Paris, France.
    - *Shannon versus Turing, the limit of Artificial Intelligence* by Philippe Jacquet, Inria, Paris-Saclay, France.
    - *5G: Key technologies, standard and evolutions* by Marceau Coupechoux, Telecom Paris-Tech, France.

  Fourteen technical presentations have been given during the three days of the PEMWN 2019 conference.

10.1.1.2. Member of the Organizing Committees

- **Paul Muhlethaler** organized the DGA Inria workshop on the topic "Au dela des communications quantiques, les réseaux quantique" in May 2019.

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

- **Paul Muhlethaler** was a Steering committee member of IWVSC 2019.

- **Pascale Minet** was chair of the Technical Program Committee of PEMWN 2019, 8th International Conference on Performance Evaluation and Modeling in Wired and Wireless Networks, November 2019.

10.1.2.2. Member of Conference Program Committees

- **Pascale Minet**
  – CoRes 2019, 4emes Rencontres Francophones sur la Conception de Protocoles, l'Evaluation de Performance et l'Expérimentation des Réseaux de Communication, May 2019.
  – EUSPN 2019, 10th International Conference on Emerging Ubiquitous Systems and Pervasive Networks (EUSPN), November 2019.,
  – GlobeCom 2019, IEEE Global Communications Conference, December 2019.
  – IWVSC 2019, 3rd International Workshop on Vehicular Adhoc Networks for Smart Cities, November 2019,
  – MLN 2019, Machine Learning for Networking, December 2019,
  – MSPN 2019, 5th International Conference on Mobile, Secure and Programmable Networking, June 2019,
  – PECCS 2019, 9th International conference on Pervasive and Embedded Computing and Communication Systems, September 2019,
  – VTC 2019, 88th IEEE Vehicular Technology Conference, September 2019,
  – Wireless Days 2019, IFIP/IEEE Wireless Days, April 2019,
  – WiSEE 2019, 7th IEEE International Conference on Wireless for Space and Extreme Environments, October 2019.
- **Paul Muhlethaler**:
  – ISCC 2019, 30 June -28 July 2019, Barcelona Spain,
  – MLN 2019, Machine Learning for Networking, December 2019, Paris.
  – PEMWN 2019, 8th International Conference on Performance Evaluation and Modeling in Wired and Wireless Networks, 26 - 28 November 2019, Paris,
  – Wireless Days, IFIP/IEEE Wireless Days 24 - 26 April 2019, Manchester

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

- **Paul Muhlethaler**
  – Reviewer Ad Hoc Networks Journal (Elsevier),
  – Reviewer Annals of Telecommunications,
  – Reviewer International Journal of Distributed Sensor Networks. Hindawi,
  – Reviewer IEEE Transactions on Information Theory,
  – Reviewer IEEE Transactions on Vehicular Technology,
  – Reviewer IEEE Transactions on Wireless Communications,
  – Reviewer MDPI Sensors
- **Pascale Minet**
  – Acta Astronautica,
  – Ad Hoc Networks,
  – Annals of Telecommunications,
  – Computer Communications,

- – Computer Networks,
- – Engineering Applications of Artificial Intelligence,
- – Future Internet,
- – IEEE Access,
- – IEEE Internet of Things,
- – IEEE Transactions on Mobile Computing,
- – IEEE Transactions on Industrial Informatics,
- – International Journal of Advanced Intelligence Paradigms,
- – International Journal of Communication Systems,
- – Sensors Journal,
- – Wireless Networks.
- Nadjib Achir
  - – Reviewer Sensor Networks (MDPI)
  - – Reviewer Wireless Communications and Mobile Computing (Wiley)
  - – Reviewer Internet of Things Journal (IEEE)
  - – Reviewer Ad Hoc Networks Journal (Elsevier)
- Selma Boumerdassi
  - – Reviewer Ad Hoc Networks Journal (Elsevier);
  - – Reviewer The journal of Future Generation Computer Systems (Elsevier).
- Samia Bouzefrane
  - – The International Journal of Computer and Telecommunications Networking (Elsevier),
  - – The IEEE Transactions on Mobile Computing,
  - – The Information and Software Technology Journal (Elsevier)
  - – The Springer Multimedia Tools and Application Journal
  - – The ACM Transaction on Internet Technology
  - – The Concurrency and Computation Practice and Experience Journal
  - – the Journal of Systems and Software (Elsevier)

10.1.4. Invited Talks

- **Thomas Watteyne**
  - – SmartMesh IP. Captronic/Arrow mesh networking day. Montpellier, France, 13 June 2019.
  - – OpenTestbed; Poor Man's IoT Testbed. TILECS Workshop. Grenoble, France. 4 July 2019.
  - – SmartMesh IP. Captronic/Arrow mesh networking day. Toulouse, France, 18 April 2019.
- **Pascale Minet**
  - – "Estimation and Prediction of Link Quality in Low-Power Wireless Mesh Networks" at the Machine Learning for Networking (MLN) conference, December 2019, Paris.

10.1.5. Leadership within the Scientific Community

Thomas Watteyne co-chairs the IETF 6TiSCH standardization group. **Malisa Vucinic** co-chairs the IETF LAKE standardization group.

10.1.6. Scientific Expertise

- **Thomas Watteyne** regularly consults with major player in the (Industrial) IoT space.
- **Pascale Minet** was also reviewer of a proposal submitted to the Call for Generic Projects issued by the ANR.

10.1.7. Research Administration

- **Thomas Watteyne** is member of the Inria-Paris "Commission de Developpement Technologique", since 2018, where we ensure Inria project teams get sufficient engineering resources to change the world.
- **Paul Muhlethaler** is member of the Inria-Paris "Comite de Centre", since 2016 (alternate of Michel Kern).
- **Thomas Watteyne** is member of the Inria-Paris "Comite de Centre", since 2016, where we work on making sure Inria-Paris will always remain one of the greatest places to work at!
- **Pascale Minet** is member of the Inria-Paris "Commission d'Emplois Scientifiques" (Delegations, Postdocs, and PhD scholarship) since 2018.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- **Thomas Watteyne** teaches 6-week course on IoT, with associated hands-on labs. Undergraduate level. ENSTA ParisTech. Together with Tarak Arbi and Dominique Barthel. Spring 2019.
- **Thomas Watteyne** teaches 1/2-day crash course on the Industrial IoT, Telecom ParisTech. Graduate level. 27 September 2019.
- **Thomas Watteyne** teaches 1-day hands-on course on IIoT, and support of subsequent projects, MsC level, University College London, 6 February 2019.

10.2.2. Supervision

- PhD : Fouzi Boukhalfa, Low and high reliability access in Vehicular Ad-hoc NETworks. Sorbonne University. **Paul Muhlethaler**.
- PhD (ongoing) Razanne Abu Aisheh, Robotics, Sorbonne University. **Thomas Watteyne**,
- PhD (ongoing) Mina Rady, Heterogeneous architectures for the IoT, Sorbonne University. **Thomas Watteyne** and **Paul Muhlethaler**, under a CIFRE agreement with Orange Labs, Meylan, France.
- PhD (defended) Jonathan Munoz, Time slotted systems for long range communications, Sorbonne University, **Thomas Watteyne** and **Paul Muhlethaler**.
- PhD (in progress) Amar Abane, Name Data Networks in the Internet of Things, Cnam. Samia Bouzefrane and **Paul Muhlethaler**.
- PhD (in progress) Abdallah Soheby, Etude et evaluation de la dissemination des informations dans la 5G. Eric Renault and **Paul Muhlethaler**.
- PhD (in progress) Mamoudou Sangara, Utilisation de techniques de Machine Learning dans les reseaux VANETs. Samia Bouzefrane and **Paul Muhlethaler**.
- PhD (in progress) Iman Hmedoush, Connection protocols for the 5G IoT. Cedric Adjih and **Paul Muhlethaler**.

10.2.3. Juries

- HdR:
  - Hichem Sedjelmaci "Attacks Detection and Prediction Frameworks Based on AI Techniques for Wireless and Mobile Networks" Univeristy de Burgundy, October 2019 **Paul Muhlethaler** reviewer.

- Katia Jaffres-Runser, "Modélisations et Optimisation Multicritere de Réseaux", Institut National Polytechnique de Toulouse, July 2019, **Pascale Minet** reviewer.

- PhD:
  - Vasileios Kotsiou, "Reliable Communications for the Industrial Internet of Things", University of Strasbourg, France, **Thomas Watteyne** examiner.
  - Meriem Smache, "Deterministic Network Security for the Industrial Internet of Things (IIoT)", CEA and École des Mines de Saint-Étienne, France, **Thomas Watteyne** examiner.
  - Esteban Municio, "Towards Scalable and End-to-End Programmable Industrial Internet of Things", University of Antwerpen , Belgium, **Thomas Watteyne** examiner.
  - Amel Arfaoui. "Game based for security of Intenet of things" Univeristy de Burgundy, 15 October 2019 **Paul Muhlethaler** examiner
  - Amar Abane. "Une Architecture Réaliste pour l'IOT" Cnam and University of Tizi Ouzou 2 December 2019 **Paul Muhlethaler** examiner
  - Karen Boulos, "BBU-RRH Association Optimization in Cloud-Radio Access Networks", University of Paris-Saclay, July 2019, **Pascale Minet** reviewer.
  - Jinpeng Wang, "Impact of Mobility and Deployment in Confined Spaces on Low Power and Lossy Network", University of Clermont-Auvergne, July 2019, **Pascale Minet** examiner.
  - Yoann Desmouceaux, "Network Layer Protocols for Data Center Scalability", University of Paris-Saclay, April 2019, **Pascale Minet** examiner.

10.3. Popularization

10.3.1. Dans les Medias

- **Thomas Watteyne**
  - Falco : Des capteurs pour connecter ports et plaisanciers. BoatIndustry, 15 November 2019
  - Agde : le port connecté, une réalité. Midi Libre, 31 October 2019.
  - Gestion portuaire : les ports de Lorient et Cap d'Agde entrent dans l'ère du port connecté, Actu Maritime, 1 August 2019.
  - Port connecté : un nouveau cap franchi grâce à Falco (an interview of our startup's CEO Elsa Nicol), inria.fr, 18 February 2019.

10.3.2. Creation of media or tools for science outreach

A video concerning the research on protocols for VANETs by Mohamed Hadded has been made by Inria.

<p align="center" style="color:red">FOCUS Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Mario Bravetti has been scientfiic co-organizer for Int. PhD School and Bootcamp on Behavioural Application Program Interfaces (BehAPI 2019), Leicester, UK.

Ugo Dal Lago has organized the Second Workshop on Probabilistic Interactive and Higher-Order Computation (6-7 February 2019) http://pihoc2019.cs.unibo.it/.

10.1.1.2. Member of the Organizing Committees

Local Organising Committee:

Michael Lodi has been a member of the Local Organising Committee of the 13th Conference of European Science Education Research Association (ESERA '19). Bologna, 26th - 30th August 2019

Steering Committee membership:

I. Lanese: Conference on Reversible Computation (RC); IFIP Int. Conference on Formal Techniques for Distributed Objects, Components and Systems (FORTE); Interaction and Concurrency Experience (ICE)

D. Sangiorgi: Int. Conference on Concurrency Theory (CONCUR)

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

M. Bravetti: 22nd International Conference on Fundamental Approaches to Software Engineering (FASE/ETAPS 2019); IEEE International Conference on Big Data (BigData 2019); 19th IEEE International Conference on Software Quality, Reliability, and Security (QRS 2019); 8th IPM International Conference on Fundamentals of Software Engineering (FSEN 2019)

U. Dal Lago: Annual ACM/IEEE Symposium on Logic in Computer Science (LICS 2019; 47th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2020); 28th European Symposium on Programming (ESOP 2019); 4th International Conference on Formal Structures for Computation and Deduction (FSCD 2019)

I. Lanese: 11th Conference on Reversible Computation (RC 2019); 12th Interaction and Concurrency Experience (ICE 2019); 16th International Conference on Formal Aspects of Component Software (FACS 2019); 12th IEEE International Conference on Service-Oriented Computing and Applications (SOCA 2019); First Workshop on Artificial Intelligence and fOrmal VERification, Logic, Automata, and sYnthesis (OVERLAY 2019); 4th Workshop on Formal Reasoning about Causation, Responsibility, and Explanations in Science and Technology (CREST 2019); 2nd International Conference on Microservices (MICROSERVICES 2019); 12th Innovations in Software Engineering Conference (ISEC 2019)

S. Martini: Workshop on History of Formal Methods (HFM2019); Fifth International Conference on History and Philosophy of Computing (HAPOC 5).

D. Sangiorgi: 22nd International Conference on Foundations of Software Science and Computation Structures (FOSSACS); 44th International Symposium on Mathematical Foundations of Computer Science (MFCS); 12th A.P. Ershov Informatics Conference (PSI); Workshop on History of Formal Methods (HFM2019); 15th International Conference on Software Technologies (ICSOFT)

G. Zavattaro: 17th International Conference on Service Oriented Computing (ICSOC'19); International Conference TOOLS 50+1: Technology of Object-Oriented Languages and Systems (TOOLS'19); 30th International Conference on Concurrency Theory (CONCUR'19); 34th ACM/SIGAPP Symposium On Applied Computing – track on Microservices, DevOps, and Service-Oriented Architecture (ACM-SAC 2019)

10.1.3. Journals

10.1.3.1. Member of the Editorial Boards

M. Bravetti: Journal of Universal Computer Science.

U. Dal Lago: Logical Methods in Computer Science; Mathematical Structures in Computer Science; Acta Informatica.

M. Gabbrielli: Int. Journal Theory and Practice of Logic Programming.

C. Laneve: Frontiers in ICT (Section Formal Methods).

I. Lanese: Editor in chief of the Open Journal of Communications and Software (Scientific Online).

D. Sangiorgi: Acta Informatica, Distributed Computing, RAIRO Theoretical Informatics and Applications.

10.1.4. Invited Talks

U. Dal Lago: Bellairs Workshop on Higher-Order Probabilistic Computation; 1st Computer Science Workshop; "Mission 10000 Conference: Quantum Science and Technologies"

D. Sangiorgi: International Conference TOOLS 50+1: Technology of Object-Oriented Languages and Systems (TOOLS'19)

Schools:

M. Avanzini: International School on Rewriting, Paris, France, 1–6 July, 2019

U. Dal Lago: 1st "Caleidoscope" Summer School

G. Zavattaro: BehAPI Summer School: Behavioural Approaches for API-Economy with Applications, Leicester, UK, 8–12 July, 2019

10.1.5. Leadership within the Scientific Community

U. Dal Lago has been elected member of the Scientific Council of the Italian Chapter IC-EATCS (November 2017).

S. Martini is a member of the Council of the Commission on History and Philosophy of Computing, an organism of the International Union for History and Philosophy of Science, 2017-2021.

G. Zavattaro is member of the scientific committee of GRIN (GRuppo INformatici), Italy.

10.1.6. Administration duties

M. Gabbrielli is Deputy Head of the Department of Computer Science and Engineering, University of Bologna, since May 2018.

D. Sangiorgi is coordinator of postgraduate studies at the Department of Computer Science and Engineering, University of Bologna.

G. Zavattaro is coordinator of undergraduate studies at the Department of Computer Science and Engineering, University of Bologna.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Mario Bravetti

    Master: "Linguaggi, Compilatori e Modelli Computazionali", 120 hours, 1st year, University of Bologna, Italy.

- Ugo Dal Lago

    Undergraduate: "Algorithms and Data Structures for Biology", 60 hours, 2nd year, University of Bologna, Italy. 20 hours, 1st year, University of Bologna, Italy.

    Undergraduate: "Optimization", 36 hours, 2nd year, University of Bologna, Italy.

    Master: "Foundations of Logic for Computer Science", 24 Hours, 2nd year. University of Bologna, Italy.

    Master: "Cryptography", 40 Hours, 2nd year, University of Bologna, Italy'.

    Master: "Languages and Algorithms for AI: Machine Learning Theory", 32 Hours, 1st year, University of Bologna, Italy'.

- Maurizio Gabbrielli

    Undergraduate: "Programming languages", 40 hours, 2nd year, University of Bologna, Italy.

    Master: "Artificial Intelligence", 60 hours, 2nd year, University of Bologna, Italy.

- Francesco Gavazzo

    Undergraduate: "Programming languages", 30 hours, 2nd year, University of Bologna, Italy.

    Undergraduate: "Basic Computer Skills". 30 hours, BSc Medical Chemistry and Pharmaceutical Technology, BSc Biology, University of Bologna.

- Ivan Lanese

    Undergraduate: "Architettura degli Elaboratori", 66 hours, 1st year, University of Bologna, Italy.

    Master: "Ingegneria del Software Orientata ai Servizi", 22 hours, 2nd year, University of Bologna, Italy.

    Master: "Algorithms and data structures for computational biology", 36 hours, 1at year, University of Bologna, Italy.

    Master: "Programming for bioinformatics", 30 hours, 1st year, University of Bologna, Italy.

- Cosimo Laneve

    Undergraduate: "Programmazione", 70 hours, 1st year, University of Bologna, Italy.

    Master: "Analisi di Programmi", 42 hours, 1st year, University of Bologna, Italy.

- Simone Martini

    Master: "Introduction to Algorithms and Programming", 32 hours, 1st year, University of Bologna, Italy.

- Davide Sangiorgi

    Undergraduate: "Operating Systems", 110 hours, 2nd year, University of Bologna, Italy.

    Undergraduate: "Computer abilities for biologists", 8 hours, 1st year, University of Bologna, Italy.

- Gianluigi Zavattaro

Master: "Scalable and Cloud Programming", 50 hours, 2nd year, University of Bologna, Italy.

Undergraduate: "Algoritmi e strutture dati", 60 hours, 2nd year, University of Bologna, Italy.

Master: "Languages and Algorithms for Artificial Intelligence", 32 hours, 1st year, University of Bologna, Italy (Master in Artificial Intelligence).

10.2.2. Supervision

Below are the details on the PhD students in Focus: starting date, topic or provisional title of the thesis, supervisor(s).

- Melissa Antonellii, November 2019. "Probabilistic Arithmetic and Almost-sure Termination". Supervisor Ugo Dal Lago.
- Adrien Durier, September 2016, "Proving behavioural properties of higher-order concurrent languages", ENS de Lyon and University of Bologna. Supervisors: Daniel Hirschkoff and Davide Sangiorgi.
- Michael Lodi, January 2017, "Introducing Computational Thinking in K-12 Education: Historical, Epistemological, Cognitive and Affective Aspects". Supervisor: S. Martini.
- Gabriele Vanoni, November 2018. "Optimal Reduction, Geometry of Interaction, and the Space-Time Tradeoff". Supervisor Ugo Dal Lago.
- Stefano Pio Zingaro, November 2016, "High level languages for Internet of Things applications". Supervisor: Maurizio Gabbrielli.

PhD thesis completed in 2018:

- Raphaelle Crubillé, October 2015, "Bisimulation Metrics and Probabilistic Lambda Calculi", Université Denis Diderot and University of Bologna. Supervisors Thomas Ehrhard and Ugo Dal Lago.
- Francesco Gavazzo, October 2015, "Coinductive Techniques for Effectful Lambda Calculi". Supervisor U. Dal Lago.
- Tong Liu, November 2015, "Constraint based languages for Software Defined Networks". Supervisor: Maurizio Gabbrielli.

10.2.3. Juries

G. Zavattaro has been member of the PhD evaluation committee of Doriana Medic, supervisor Claudio Antares Mezzina, IMT Lucca, Italy.

10.3. Popularization

Michael Lodi and Simone Martini have carried out extended work of scientific popularization, including the following.

- They are members of the technical committee of Olimpiadi del Problem Solving (at Italian Ministry of Education), http://www.olimpiadiproblemsolving.com; this involves preparation of material and supervision and jury during the finals.
- Simone Martini has given the following talks, among others:
  - De la création d'une "théorie mathématique du calcul" à la "pensée informatique". Quatrième journée académique sur l'enseignement de l'informatique, Marseille (avril 2019)
  - To code or not to code: the school curriculum facing the digital revolution. Collegium—Lyon Institute for Advanced Studies (Juin 2019)
  - Logic and computing in Italy at the birth of the Italian Computer Science, Roma Tre, September 2019

<p style="text-align:center">**FUN Project-Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Valeria Loscri is General Chair of ACM NanoCom 2020
- Nathalie Mitton is a member of the Steering committee of CIoT
- Nathalie Mitton is demo/poster chair of infocom 2019
- Valeria Loscri is Short Papers, Posters & Demos chair and Local Organizer of WiMoB 2019

9.1.1.2. Chair of Conference Program Committees

- Antoine Gallais is TPC co-chair of CoRes 2019.
- Valeria Loscri is TPC co-chair of IEEE ACM Nanocom 2019, CoRES 2020, TPC chair for Persist-IoT workshop at mobihoc 2019, TPC chair for Persist-IoT at Infocom 2020
- Nathalie Mitton is TPC co-chair of ICC 2019.

9.1.1.3. Member of the Conference Program Committees

- Valeria Loscri is/was member in the Technical Program Committee (TPC) in IoTDI 2020, IEEE GLOBECOM 2020 & 2019, VTC 2020 & 2019, SECON 2020 & 2019, GIoTS 2019, CCNC 2019, ICC 2020 & 2019, WiMob 2020 & 2019 WF-IoT
- Nathalie Mitton is/was in the Technical Program Committee (TPC) of REFRESH 2020, Infocom 2020, Percom 2020 & 2019, WCNC 2020 & 2019, DCOSS 2020 & 2019, CORES 2020 VTC 2020 & 2019, IEEE GLOBECOM 2020 & 2019, GIIS 2020, ICC 2020, AdHoc-Now 2019.
- Antoine Gallais was/is in the Technical Program Committee (TPC) of IEEE GLOBECOM 2019, IEEE ICNC 2019

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- Nathalie Mitton is editorial board members of AHSWN since 2011
- Nathalie Mitton is editorial board member of Adhoc Networks since 2012
- Nathalie Mitton is editorial board member of IET-WSS since 2013
- Nathalie Mitton is editorial board member of ComSoc MMTC e-letter since 2014
- Nathalie Mitton is editorial board member of Wiley Transactions Emerging Telecommunications Technologies since 2016
- Nathalie Mitton is editorial board member of Wireless Communications and Mobile Computing since 2016
- Nathalie Mitton is editorial board member of MDPI Future Internet since 2018
- Valeria Loscri is editorial board member of IEEE Transactions on Nanobioscience journal since 2017
- Valeria Loscri is editorial board member of Elsevier Computer Networks journal since 2016
- Valeria Loscri is editorial board member of Robotics Software Design and Engineering of the International Journal of Advanced Robotic Systems since 2016

- Valeria Loscri is editorial board member of Elsevier Journal of Networks and Computer Applications (JNCA) journal since 2016
- Valeria Loscri is editorial board member of Wiley Transactions Emerging Telecommunications Technologies since 2019

9.1.2.2. Guest editorial activities

- Nathalie Mitton is (co-)editor of Sensor Special Issues of MDPI Sensors on Optimization and Communication in UAV Networks and Lead Guest Editor of the Green Data Collection and Processing in Smart Cities SI at Annals of Telecoms.
- Valeria Loscri is co-editor of Future Internet Special issues of MDPI The Internet of Things in smart environments

9.1.3. Invited Talks

- Nathalie Mitton gave an invited talks at the following events: Journées scientifiques Inria in June, Recontres Inria EuraSanté in June, Journées SPOC at UTC in November and Smart Logistic at IoT Week in December and IoT Days at Paris Sorbonne in December.
- Julien Vandaele and Matthieu Berthome gave an invited talk at TechTalk S Station F in April.

9.1.4. Leadership within the Scientific Community

- Nathalie Mitton is a member of the Steering Committee of the GDR RSD Rescom
- Valeria Loscri is a Member of Social Network Technical Committee
- Valeria Loscri is a Member of Emerging Technologies Initiatives for Molecular, Biological and Multi-Scale Communications (ETI-MBMC)
- Valeria Loscri is a member of the Quantum Communications & Information Technology Emerging Technical Subcommittee (QCIT)
- Valeria Loscri is a member of the 'Research Group on IoT Communications and Networking Infrastructure' at ComSoc Communities
- Valeria Loscri is Newsletter Chair for the Technical Committee for Social Networks (TCSN) IEEE Comsoc since April 2019.

9.1.5. Scientific Expertise

- Nathalie Mitton
    - She is an elected member of the evaluation community of Inria.
    - She has acted as a reviewer for ANRT and ANR project submissions.
    - She is also member of the scientific committees of the competitiveness cluster of MATIKEN and for CITC (International Contactless Technologies Center).
    - She is member of the CA of CITC.
    - She has been a member of the PRIX Roberval committee.
    - She has been a member of the Bourses L'Oreal FRANCE.
    - She is a member of the HCERES visiting committee for the LISIS laboratory.
    - She has been appointed as reviewer for the Polish National Science Centre.
    - She has been appointed as reviewer for the Heinz Maier-Leibnitz-Prize 2020.
- Valeria Loscri
    - She has been reviewer for TOP grant for senior researchers for Netherlands Organisation for Scientific Research (NWO) program.
    - She has been reviewer for proposal for grant competition at the Center for Excellence in Applied Computational Science and Engineering (CEACSE), UTC (USA).
    - She has been external evaluator of ERC Consolidator Grants.

– She was Scientific European Responsible for Inria Lille - Nord Europe till September 2019.

– She is Scientific International Responsible for Inria Lille from September 2019.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

E-learning

Mooc, Nathalie Mitton, "Villes intelligentes : défis technologiques et sociétaux", 5-week mooc by the IPL CityLab@Inria team, FUN, Inria, in November 2019

SPOC, Nathalie Mitton, EIT Digital "Technological challenges of participatory Smart cities", 5-week by the IPL CityLab@Inria team in November 2019

Remote curse, Nathalie Mitton, Internet of things, 5-week + face to face week in May 2019

Master: Valeria Loscri, Objets Communicants, 24h (Mineure Habitat Intelligent), Ecole des Mines de Douai, France

Master: Nathalie Mitton, Wireless networks, 16h eqTD (Master TiiR), Université Lille 1, France

Master: Nathalie Mitton, Wireless sensor networks, 16h eqTD (Master MINT), Université Lille 1 and Telecom Lille 1, France

Master: Nathalie Mitton, Smart objects, 10h CM + 12h TP, Ecole centrale de Lille, France

Master: Nathalie Mitton, Industrial Internet of Things, 10h CM Ecole centrale de Lille, France

Master: Ibrahim Amadou, Industrial to Internet of Things, 12h TP Ecole centrale de Lille, France

Master: Nathalie Mitton, Introduction to Internet of Things, 4h CM Ecole centrale de Lille, France

Master: Ibrahim Amadou, Introduction to Internet of Things, 8h TP Ecole centrale de Lille, France

Master: Nathalie Mitton, Wireless sensor networks, 16h eqTD (Master ROC), IMT, France

Licence: Brandon Foubert, Conception Orientée Objet, 42.06h eqTD (Licence 3), FST, France

9.2.2. Supervision

PhD in progress: Brandon Foubert, Communication sans fil Polymorphe pour l'Agriculture Connectée, Université Lille 1, 2018-2021, Nathalie Mitton

PhD in progress: Edward Staddon, Threat detection, identification and quarantine in wireless IoT based Critical Infrastructures, Université Lille 1, 2019-2022, Nathalie Mitton & Valeria Loscri

PhD in progress: Carola Rizza, Nouveaux paradigmes de communication basés sur les technologies émergentes, Université Lille 1, 2019-2022, Valeria Loscri

PhD in progress: Emilie Bout, Denial-of-sleep over IoT networks, Université Lille 1, 2019-2022, Valeria Loscri & Antoine Gallais

PhD in progress: Meysam Mayahi, Communication Protocols based on alternative paradigm for wireless mobile devices, Université Lille 1, 2019-2022, Valeria Loscri

PhD in progress: Mohammad Hussein Ghosn, Université Lille 1, 2019-2022, Valeria Loscri & Alia Ghadar

9.2.3. Juries

- PhD and HDR committees:
  - Valeria Loscri is/was member of the following PhD thesis committees:
    * Xiaojun Xi, CentraleSupeléc, Dec. 2019.
    * Jian Song, CentraleSupeléc, Dec. 2019.

    *   Jorge Martinez, Universidade Politecnica Valencia, Spain, June 2019 (reviewer).
- Nathalie Mitton is/was member of the following PhD thesis committees:
  - * Domga Rodrigue Komguem INSA Lyon/University of Yaoundé (reviewer)
  - * Maxime Mroue, Université de Nantes, December 2019 (chair)
  - * Alwan Safwan, Université Paris Est, December 2019
  - * Gewu Bu, Université Paris Sorbonne, December 2019 (reviewer)
  - * Marija Stojanova, Université de Lyon, December 2019
  - * Henry-Joseph Audeoud, Université de Grenoble, December 2019
  - * Francisco Jose Fabra Collado, Universitat Politecnica de Valencia, December 2019 (reviewer)
  - * Lilian Besson, Centrale Supelec Rennes, novembre 2019 (reviewer, chair)
  - * Dorin Rautu, ENSEEITH, October 2019 (chair)
  - * Mariem Harmassi, Université de La Rochelle, September 2019 (reviewer)
  - * Nicolas De Araujo Moreira, Université de Lille, July 2019
  - * Wei Hu, Centrale Lille, July 2019 (chair)
  - * Philippe Pittoli, Université de Strasbourg (reviewer) may 2019
  - * Fadhlallah Baklouti, Université Bretagne Sud, February 2019
  - * Mohammed Islam Naas, Université de Bretagne Occidentale (reviewer), February 2019
- Nathalie Mitton was a member of the HDR defense committees
  - * Thomas Watteyne, Sorbonne Université, May 2019

- Researcher selection committees:
  - Nathalie Mitton was a member of the Professor competition selection committee at INSA Lyon
  - Nathalie Mitton was a member of the Assistant Professor (MdC) committee for Université de Lyon.
  - Nathalie Mitton was a member of a CPPI selection for Inria Saclay.
  - Nathalie Mitton was a member of the Inria chaire committee for Centrale Supelec Rennes.
  - Nathalie Mitton was a member of the Inria SRP/ARP selection.
  - Nathalie Mitton was a member of the national Inria junior researcher competition committee.
  - Valeria Loscri was a member of the Inria junior researcher competition committee for Lille center.
  - Valeria Loscri was a member of the MdC committee for Centrale Supelec.
- PhD follow-up committees:
  - Nathalie Mitton is/was reviewer of the following PhD follow-up committees:
    - * Rodrigue Domgua Rodriguez, INSA Lyon
    - * Alexis Bitaillou, Université de Nantes
    - * Vaseileios Kotsiou, Université de Strasbourg
  - Valeria Loscri is/was reviewer of the following PhD follow-up committees:
    - * Lin Chen, Centrale Supélec.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- Nathalie Mitton is the referent researcher for the creation of the MATH Laboratory in Nord

9.3.2. Articles and contents

- Nathalie Mitton published a paper in Techniques de l'Ingénieur.
- Valeria Loscri released an interview "Innovation Valeria Loscri, la lumière des LED contre le wifi électromagnétique" for the newspaper La Voix du Nord

<p align="center">**GANG Project-Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

Adrian Kosowski was one of the organizing chairs of the workshop "CELLS: Computing among Cells", co-located with DISC 2019, Budapest, October 2019.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

Carole Delporte was PC member of DISC 2019

Carole Delporte was PC member of NETYS 2019

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Pierre Fraigniaud is a member of the Editorial Board of Distributed Computing (DC).
- Pierre Fraigniaud is a member of the Editorial Board of Theory of Computing Systems (TOCS).

9.1.4. Invited Talks

Carole Delporte, Collège de France, Protocoles de population, Paris mars 2019.

Michel Habib International Summer School on Networks and Evolution, "Centralities in Networks", Roscoff juin 2019.

Michel Habib Participation to a CIMPA Research School in Tabriz (IRAN) "Graphs, Algorithms and Randomness", june 2019. Cours de 8h: "Efficient graph algorithms and applications".

Michel Habib "Diameter computations in graphs and shortest paths problems", Université Libre de Bruxelles, june 2019

Pierre Fraigniaud was invited speaker [18] at SIROCCO 2019.

9.1.5. Research Administration

- Hugues Fauconnier is director of the UFR d'informatique of Université Paris Diderot.
- Carole Delporte-Gallet is deputy director of the UFR d'informatique of Université Paris Diderot.
- Laurent Viennot is leader of the "Algorithms and discrete structures" department of the Institute de Recherche en Informatique Fondamentale (IRIF).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: Carole Delporte and Hugues Fauconnier, Algorithmique distribuée avec mémoire partagée, 6h, M2, Université Paris Diderot

Master: Hugues Fauconnier, Cours Algorithmes répartis, 33h, M2, Univ. Paris Diderot

Master: Carole Delporte, Cours et TP Protocoles des services internet, 44h, M2, Univ. Paris Diderot

Master: Carole Delporte, Cours Programmation répartie, 33h, M2, Univ. Paris Diderot

Master: Carole Delporte and Hugues Fauconnier, Théorie et pratique de la concurrence, 48h, M1, Université Paris Diderot

Licence: Carole Delporte and Hugues Fauconnier, Culture informatique, 16h, L2, Univ. Paris Diderot

Licence: Boufkhad Yacine, Algorithmique et Informatique, 132h, L1, IUT de l'Université Paris Diderot

Licence: Boufkhad Yacine, Programmation Orientée Objet, 60h, L2, IUT de l'Université Paris Diderot

Licence: Boufkhad Yacine, Traitement de données, 16h, L2, IUT de l'Université Paris Diderot

DU Santé connectée, 12h réseau, Université Paris Diderot, public divers.

Master: Pierre Fraigniaud, Algorithmique parallèle et distribuée, 24h, Ecole Centrale Supélec Paris, M2

Master: Adrian Kosowski, Competitive Programming - Modal Course, 60h, M1, École Polytechnique

Licence: Adrian Kosowski, Design and Analysis of Algorithms, 32h, L3, École Polytechnique

Master: Pierre Fraigniaud and Adrian Kosowski, Algorithmique distribuée pour les réseaux, 24h, M2, Master Parisien de Recherche en Informatique (MPRI)

Master: Fabien de Montgolfier, Grand Réseaux d'Interaction, 44h, M2, Univ Paris Diderot

Licence: Fabien de Montgolfier, Protocoles Réseau (TP/TD), 24h, M1, Univ Paris Diderot

Licence: Fabien de Montgolfier, Programmation avancée (cours/TD/projet, bio-informatique), 52h, L3, Univ. Paris Diderot

Master: Fabien de Montgolfier, Algorithmique avancée (bio-informatique), 26h, M1, Univ Paris Diderot

Licence: Fabien de Montgolfier, Algorithmique (TD), 26h, L3, Ecole d'Ingénieurs Denis Diderot

License : Laurent Viennot, Algorithms, 12h, L3-M1 BioInfo, Univ. Paris Diderot

Licence: Pierre Charbit, Elements d'Algorithmique, 24h, L2, Université Paris Diderot, France

Licence: Pierre Charbit, Automates finis, 36h, L2, Université Paris Diderot, France

Licence: Pierre Charbit, Internet et Outils, 52h, L1, Université Paris Diderot, France

Master: Pierre Charbit, Programmation Objet, 60h, M2Pro PISE, Université Paris Diderot, France

Master: Pierre Charbit, Algorithmique de Graphes, 12h, M2 MPRI, Université Paris Diderot, France

9.2.2. Supervision

PhD defended: Simon Collet (co-advised by Amos Korman and Pierre Fraigniaud) [1]. Title of thesis is: "Algorithmic Game Theory Applied to Biology". Started September 2015, defended on December 9th, 2019 at Paris University.

PhD defended: Mengchuan Zou (co-advised by Adrian Kosowski and Michel Habib) [2]. Title of thesis is: "Aspects of Efficiency in Selected Problems of Computation on Large Graphs". Started October 2016, defended on December 17th at Paris University.

PhD in progress: Brieuc Guinard (advised by Amos Korman). Title of thesis is: "Algorithmic Aspects of Random Biological Processes". Started October 2016.

PhD in progress: Zeinab Nehaï (advised by Hugues Fauconnier). Title of thesis is : Verification of block-chain. Started October 2018

9.2.3. Juries

Carole Delporte-Gallet was on the jury committee of the PhD thesis of Jules Chouquet "Une Géométrie du calcul Réseaux de preuve, Appel-Par-Pousse-Valeur et topologie du Consensus", december 2019, Université Paris Diderot.

Carole Delporte-Gallet was the referee and on jury committee of the HDR thesis of Janna Burman "Distributed Computing with Limited Resources", december 2019, Université Paris-Sud.

Carole Delporte-Gallet was on the jury committee of the PhD thesis of Marjorie Bournat "Graceful Degradation and Speculation for Robots in Highly Dynamic Environments, june 2019, Sorbonne Université.

Hugues Fauconnier was on jury committee of the HDR thesis of Janna Burman "Distributed Computing with Limited Resources", december 2019, Université Paris-Sud.

Michel Habib was on the jury committee of the PhD thesis of Keno Merckx "Optimization and Realizability Problems for Convex Geometries", june 2019, Université Libre de Bruxelles.

Michel Habib was on the jury committee of the PhD thesis of Mehdi Kosravian Ghadikolaei, "Extension of NP Optimization problems", Université de Dauphine (PSL), july 2019.

Michel Habib was on the jury committee of the PhD thesis of Antoine Roux, "Etude d'un code correcteur linéaire pour le canal à effacements de paquets et optimisation par comptage de forêts et calcul modulaire" at Sorbonne University, december 2019.

Laurent Viennot was referee and on the jury committee of the HDR thesis of David Ilcinkas on "Structural Information in Distributed Computing" at the University of Bordeaux, March 2019.

Laurent Viennot was referee and on the jury committee of the PhD thesis of Sébastien Ratel on "Densité, VC-dimension et étiquetages de graphes" at the University of Aix-Marseille, November 2019.

<h1 style="text-align:center; color:red">HIEPACS Project-Team</h1>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

SIAM PP'20, Seattle (O. Beaumont).

9.1.1.2. Chair of Conference Program Committees

COMPAS'19 Algorithm Track (E. Agullo) ICPP'19 Algorithm Track vice-chair (E. Agullo)

9.1.1.3. Member of the Conference Program Committees

AlgoCloud'19 (O. Beaumont), COMPAS'19 (O. Beaumont), EuroPar'20 (O. Beaumont), HiPC'19 (L. Giraud), HPML'19 (O. Beaumont), ICPP'19 (A. Guermouche), IPDPS'19 (L. Eyraud-Dubois, O. Beaumont), IPDPS Workshops'19 (O. Beaumont), ISC'20 Workshops (E. Agullo), PDSEC'19 (O. Coulaud, M. Faverge, L. Giraud), IEEE PDP'19 (J. Roman), SC'19 (E. Agullo), SPAA'19 (O. Beaumont).

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- O. Beaumont is Associate Editor in Chief for the Journal of Parallel and Distributed Computing (Elsevier).
- L. Giraud is member of the editorial board of the SIAM Journal on Scientific Computing (SISC) and SIAM Journal on Matrix Analysis and Applications (SIMAX).

9.1.2.2. Reviewer - Reviewing Activities

The members of the HIEPACS project have performed reviewing for the following list of journals: Computing and Fluid, International Journal of Antennas and Propagation, Parallel Computing, SIAM J. Matrix Analysis and Applications, SIAM J. Scientific Computing, Journal of Parallel and Distributed Computing, IEEE Transactions on Parallel and Distributed Systems, IEEE Access, Concurrency and Computation: Practice and Experience, ACM Transactions on Mathematical Software, ACM Computational and Mathematical Methods, International Journal of High Performance Computing Applications, Journal Of Computational Science.

The members of the HIEPACS project have performed reviewing for the following list of conferences (additionally to PC): Europar'19, IPDPS'19, SC'18, STACS'20, SPAA'19, SC'19.

9.1.3. Invited Talks

- L. Giraud, "Dealing with unreliable computing platforms at extreme scale" invited MOX Seminars (Laboratory for Modeling and Scientific Computing MOX), Politecnico di Milano, January 23, in conjunction with the ESCAPE2 workshop on fault tolerant algorithms and resilient approaches.

9.1.4. Scientific Expertise

- Olivier Beaumont acted as expert for 2019 FET Open Evaluation Committee
- Luc Giraud is member of the board on Modelization, Simulation and data analysis of the Competitiveness Cluster for Aeronautics, Space and Embedded Systems.
- Pierre Ramet is Scientific Advisor at the CEA-DAM CESTA.
- Jean Roman is member of the Scientific Board of the CEA-DAM. As representative of Inria, he is member of the board of ETP4HPC (European Technology Platform for High Performance Computing), of the French Information Group for PRACE, of the French Working Group for EuroHPC, and of the Technical Group of GENCI.

9.1.5. Research Administration

- Emmanuel Agullo and Luc Giraud are the scientific correspondents of the European and International partnership for Inria Bordeaux Sud-Ouest.

- Olivier Coulaud is the scientific manager of the PLAFRIM platform for Inria Bordeaux Sud-Ouest.

- Jean Roman is a member of the Direction for Science at Inria : he was until the end of December 2019 the Deputy Scientific Director of the Inria research domain entitled *Applied Mathematics, Computation and Simulation* and was in charge at the national level of the Inria activities concerning High Performance Computing.

- Until July 2019, Olivier Beaumont was the vice-head of Inria Evaluation Commission.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Undergraduate level/Licence

- A. Esnard: System programming 36h, Computer architecture 40h, Network 23h, C programming 35h at Bordeaux University. He is also responsible for the second year of the computer science degree (L2 Informatique), which involves managing about 200 students each year.

- M. Faverge: Programming environment 26h, Numerical algorithmic 40h, C projects 25h at Bordeaux INP (ENSEIRB-MatMeca).

- A. Guermouche: System programming 36h at Bordeaux University.

- P. Ramet: System programming 24h, Databases 32h, Object programming 48h, Distributed programming 32h, Cryptography 32h, Introduction to AI Deep Learning and Data Analytics 16h at Bordeaux University.

Post graduate level/Master

- E. Agullo: Operating systems 24h at Bordeaux University ; Dense linear algebra kernels 8h, Numerical algorithms 30h at Bordeaux INP (ENSEIRB-MatMeca).

- O. Coulaud: Paradigms for parallel computing 8h, Introduction to Tensor methods 4h at Bordeaux INP (ENSEIRB-MatMeca).

- A. Esnard: Network management 27h, Network security 27h at Bordeaux University; Programming distributed applications 35h at Bordeaux INP (ENSEIRB-MatMeca).

- L. Eyraud-Dubois and Olivier Beaumont: Approximation and BigData 24h at Bordeaux University.

- M. Faverge: System programming 72h, Linear Algebra for high Performance Computing 13h at Bordeaux INP (ENSEIRB-MatMeca).
  He is also in charge of the master 2 internship for the Computer Science department at Bordeaux INP (ENSEIRB-MatMeca). Starting in September, he is in charge with Raymond Namyst of the High Performance Computing - High Performance Data Analytics option at ENSEIRB-MatMeca. This is a common training curriculum between the Computer Science and MatMeca departments at Bordeaux INP and with Bordeaux University in the context of the Computer Science Research Master.

- Alena Shilova and Olivier Beaumont: Deep Learning Frameworks, at Bordeaux INP (ENSEIRB-MatMeca), 20h.

- Olivier Beaumont, Sketching and Streaming Algorithms, ENS Lyon, 8h

- L. Giraud: Introduction to intensive computing and related programming tools 30h, INSA Toulouse; On mathematical tools for numerical simulations 10h, ENSEEIHT Toulouse.

- A. Guermouche: Network management 92h, Network security 64h, Operating system 24h at Bordeaux University.
- P. Ramet: Load balancing and scheduling 13h and Numerical algorithmic 40h at Bordeaux INP (ENSEIRB-Matmeca).

High School teachers

- A. Esnard, M. Faverge, and A. Guermouche participated to the training of the High School teachers (DIU Enseigner l'Informatique au Lycée) in computer science for the new computer science program starting in September 2019.

9.2.2. Supervision

- PhD Aurélien Falco; Data sparse calculation in Bridging the gap between $\mathcal{H}$-matrices and sparse direct methods for the solution of large linear systems; E. Agullo, L. Girau, G. Sylvand; defended on June 24, 2019; jury members: E. Ng (Lawrence Berkeley National Laboratory), S. Le Borne (Technische Universitat Hamburg), D. LLvadoux (ONERA) F. Alouges (Ecole Polytechnique), G. Pont (Airbus Group).
- PhD in progress: Tobias Castanet; Replication algorithms for multi-player virtual worlds; started Sep. 2019; O. Beaumont, N. Hanusse (LaBRI), C. Travers (Bordeaux INP - LaBRI).
- PhD in progress: Marek Felsoci; Fast solvers for high-frequency aeroacoustics; G. Sylvand, E. Agullo.
- PhD in progress: Martina Iannacito; Linear solvers in tensorial format for high dimensional problems; started Oct 2019; O. Coulaud, L. Giraud.
- PhD in progress: Esragul Korkmaz; Sparse linear solver and hierachical matrices; started Nov. 2018; M. Faverge, P. Ramet.
- PhD in progress: Romain Peressoni; Fast multidimensional scaling method for the study of biodiversity; started Oct 2019; E. Agullo, O. Coulaud, A. Franc (PLEIADE)
- PhD in progress: Alena Shilova; Scheduling for deep learning applications; started Oct. 2018; L. Eyraud-Dubois, O. Beaumont.
- PhD in progress: Nicolas Venkovic; Domain decomposition techniques for the solution of stochastics elliptic PDEs; started Nov. 2018; L. Giraud, P. Mycek (CERFACS).
- PhD in progress: Mathieu Vérité; Static allocation algorithms for scheduling High-Performance applications; started Sept. 2019; L. Eyraud-Dubois, O. Beaumont.
- PhD in progress: Yanfei Xiang; Solution of large linear systems with massive numbers of right-hand sides. Started Nov. 2019; L. Giraud, P. Mycek (CERFACS).

9.2.3. Juries

- Mohammad Issa, "Modélisation asymptotique et discrétisation des composants magnétiques dans les problèmes de courant de Foucault.", referees: R. V. Sabariego, S. Clénet, members: O. Coulaud, Y. Kefevren, R. Perrussel, J-R. Poirier, L. Krähenbül. Université Toulouse 3 Paul Sabatier, spécialité: électromagnétisme et Systèmes Haute Fréquence, 30 November 2019.
- Raphaël Prat, "Equilibrage dynamique de charge sur supercalculateur exaflopique appliqué à la dynamique moléculaire", referees: C. Calvin, J.F. Mehaut, reviewers: M. Baader, L. Colombet, P. Fortin, R. Namyst, J. Roman, CEA - Maison de la Simulation et Université de Bordeaux, spécialité: informatique, 9 October 2019.
- Mohamad El Sayah, "Random Generation for the Performance Evaluation of Scheduling Algorithms," referees: Olivier Beaumont and Arnaud Legrand, reviewers: Jean-Marc Nicod, Fany Dufosse, Pierre-Cyrille Heam, University of Besancon, 20 November 2019.

9.3. Popularization

9.3.1. Interventions

- Olivier Beaumont spoke to a class of high school students on algorithms (routing algorithms in particular) as part of the digital week organized by the BIJ (Bureau Information Jeunesse) of the City of La Teste de Buch.

<h1 style="text-align:center; color:red">INDES Project-Team</h1>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Ilaria Castellani was the co-chair (together with Mohammad Reza Mousavi, Antonio Ravara and Alexandra Silva) of the workshop "Open Problems in Concurrency Theory 2019" (OPCT 2019), which was held in affiliation with the POPL 2019 conference in Lisbon, on January 14-15, 2019. https://popl19.sigplan.org/track/opct-2019-papers

- Ilaria Castellani was the co-chair (together with Mohammad Reza Mousavi) of the workshop TRENDS 2019, the annual event of the IFIP WG1.8 on Concurrency Theory, which took place in Amsterdam on August 31, 2019, in association with the CONCUR 2019 conference. https://concurrency-theory.org/events/workshops/trends

- Nataliia Bielova was the co-chair (together with François Pellegrini) of the CNIL-Inria Privacy Award 2019. The award ceremony will take place at the CPDP 2020 conference in Brussels. https://www.cnil.fr/en/launch-4th-edition-cnil-inria-privacy-award

9.1.1.2. Member of the Organizing Committees

Manuel Serrano organized the IFIP 2.16 (working group on Language Design) workshop in Nice from November 11th to November 15th http://program-transformation.org/WGLD/NiceMeeting2019.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

- Ilaria Castellani served in the Program Committees of the conference CONCUR 2019 and the workshop EXPRESS/SOS 2019.

- Nataliia Bielova served in the Program Committees of the workshop MADWeb 2019, and the conferences PETs 2019, IEEE SecDev 2019, and IEEE EuroS&P 2019.

- Manuel Serrano served in the Program Committee of ProWeb'19 workshop. He was member of the ACM Software award https://www.sigplan.org/Awards/Software/.

- Tamara Rezk served in the Program Committees of the workshops MADWeb 2019, SSIoT 2019, PriSC 2019, and the conferences IEEE SecDev 2019, and NDSS 2019, and Programming.

9.1.2.2. Reviewer

- The team members have been reviewers for the following conferences and workshops: CONCUR'19, EXPRESS/SOS'19, PETs 2019, IEEE SecDev 2019, IEEE EuroS&P 2019, OOPSLA'19, ...

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Ilaria Castellani was a member of the editorial board of *Technique et Science Informatiques*, a French journal ended in June 2019.

- Ilaria Castellani (together with Mohammad Reza Mousavi) was guest editor for the JLAMP special issue on Trends in Concurrency Theory (Selected invited contributions from the workshops TRENDS 2015 and TRENDS 2016), J. Log. Algebr. Meth. Program., vol. 107, 2019 [19]. https://doi.org/10.1016/j.jlamp.2019.07.001.

9.1.3.2. Reviewer - Reviewing Activities

- The team members have been reviewers for the following journal: The Computer Journal.

9.1.4. Invited Talks

- Nataliia Bielova has been a keynote at the the Francophone workshop on Privacy Protection " l'Atelier sur la Protection de la Vie Privée" (APVP), which took place in Cap Hornu (France) from 9 to 11 July 2019. https://project.inria.fr/apvp2019/. Nataliia gave invited talks at SAP Labs (France), NOYB and TU Wien (Austria) in July/August 2019. She was an invited speaker at the Mozilla Security Summit on November 8, 2019, Vienna (Austria). https://events.mozilla.org/mozillasecurityresearchsummit2019 presenting the joint work with Imane Fouad and Arnaud Legout.

- Celestin Matte presented an ongoing work at the CNIL on October 1, 2019. Title of the talk: "Détection des violations du RGPD et de la directive e-Privacy dans les bannières de consentement aux cookies du Transparency and Consent Framework d'IAB Europe".

- Manuel Serrano has been a invited to be a keynote at the *Huawei European Research Symposium* in January 2019. He presented his work on *Hop* and *HipHop*. He has been invited by RainCode, a Belgium company located in Brussels, specialized in language compilation, to give a talk on the static compilation of dynamic languages.

9.1.5. Leadership within the Scientific Community

- Ilaria Castellani is the chair of the IFIP TC1 WG 1.8 on Concurrency Theory since June 2014 (reelected for a second term in March 2018).

- Ilaria Castellani was a member of the Management Committee of the COST Action IC1405 on Reversible Computation (until April 2019).

- Nataliia Bielova is a member of the Steering Committee of ACM PLAS.

- Tamara Rezk was a member of the Steering Committee of the POST conference during 2019 and is a member of the Steering Committee of the PriSC workshop.

9.1.6. Research Administration

- Ilaria Castellani is a member of Inria's "Comité Parité et Égalité des Chances". In the Centre of Inria Sophia Antipolis, she is a member of the "Comité d'Animation et Médiation Scientifique" and of the "Comité Scientifique du Colloquium". Within UCA, she is a member of the "Réseau Égalité" and of the organising committee of the seminar series "Forum Numerica".

- Ilaria Castellani was the chair of the "jury d'admissibilité" of the CRCN competition (for junior researcher permanent positions) in the Inria Centre of Grenoble Rhône Alpes.

- Nataliia Bielova was a member of the hiring committee for an Inria chair position "enseignement et recherche dans le domaine de la cyberse´curité" of Supelec in February 2019.

- Nataliia Bielova is a member of "Comité du Suivi Doctoral (CSD)" (Supervision of PhD students) of the Inria Sophia Antipolis Mediterranée research center.

- Since summer 2019, Manuel Serrano is vice-chair of the Inria evaluation committee (EC). The charge for this duty amounts to about 50% of his professional activities. He co-chaired the three research promotion juries of 2019. He chaired the Inria *Algorithmics, Computer Algebra and Cryptology* theme EC evaluation. He prepared the evaluation seminar of the Inria theme *Embedded systems, Architecture, and Compilation*.

- Tamara Rezk was a member of " Commission de Développement Technologique (CDT)" of the Inria Sophia Antipolis Mediterranée research center.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master : Tamara Rezk, Security of Web Applications, 28ETD, niveau M2, University of Nice Sophia Antipolis, France

Master : Tamara Rezk, Preuves en Cryptographie, 28ETD, niveau M2, University of Nice Sophia Antipolis, France

IUT : Héloïse Maurel, Introduction aux technologies du Web, 20ETD, niveau DUT1, University of Nice Sophia Antipolis, France

DIU-EIL : Héloïse Maurel, Introduction aux langages de description et programmation du Web , 20ETD, University of Nice Sophia Antipolis, France

Master: Nataliia Bielova, Privacy on the Internet, 15ETD, M2, SKEMA Business school, France.

Master : Nataliia Bielova, Security and Ethical aspect of Data, 27ETD, niveau M1, Université Côte d'Azur, France

Doctorat : Nataliia Bielova, Ecole de Cybersécurité, 3ETD, UCA, France

9.2.2. E-learning

E-learning

Mooc: Nataliia Bielova with C. Lauradoux and V. Roca, 1 session (2 months), FUN-MOOC, Inria, public targeted: around 30,000 for all the sessions since 2018, https://www.fun-mooc.fr/courses/course-v1:inria+41015+session03/about.

9.2.3. Supervision

PhD in progress: Imane Fouad, Web tracking detection and measurement, 1/01/2018, Nataliia Bielova and Arnaud Legout.

PhD in progress: Michael Toth, Privacy Policies and Cookie Banners as a GDPR consent, 1/12/2019, Nataliia Bielova and Vincent Roca.

Postdoc, Celestin Matte, Large-scale measurement of Cookie Banners, 1/03/2019-, Nataliia Bielova.

Postdoc: Yoon Seok Ko, Subsets of secure JavaScript, 1/10/2018-, Tamara Rezk, Manuel Serrano.

PhD in progress: Jayanth Krishnamurthy, Secure Reactive Web Programming, 12/09/2018, Manuel Serrano.

PhD in progress: Bertrand Petit, Musique Massivement Interactive, 12/09/2017, Manuel Serrano.

PhD in progress : Héloïse Maurel, Secure compilation of IoT applications, 1/10/2018, Tamara Rezk

PhD in progress : Mohamad Ellaz, Encodings of ElGammal, 1/12/2017, Benjamin Gregoire and Tamara Rezk

PhD in progress : Lesly-Ann Daniel, Security analysis of binary code, 1/10/2018, Sébastien Bardin and Tamara Rezk

PhD in progress : Adam Khayam, Semantics of Multitier Languages, 1/07/2019, Alan Schmitt and Tamara Rezk

Postdoc: Francis Somé, IoT secure broadcasting, 1/11/2018-1/04/2019, Tamara Rezk

9.2.4. Juries

- Nataliia Bielova was a member of the PhD jury of Antoine Vastel, University of Lille.
- Nataliia Bielova was a member of the jury "soutenance de stage" of the UBINET master of the University of Nice Sophia Antipolis.
- Tamara Rezk was a member of the HdR jury of Catalin Hritcu, ENS.
- Tamara Rezk was a reporter and jury member of the PhD jury of Alexandre Dang, University of Bretagne Loire.

- Tamara Rezk was a member of the jury "soutenance de stage" of the CASPAR master of the University of Nice Sophia Antipolis.
- Manuel Serrano was a reporter and jury member of N. Oostvogels's PhD, Vrije University, Brussels.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

Tamara Rezk was member of the editorial board of Interstices (https://interstices.info/) and Blog Binaire Le Monde (https://www.lemonde.fr/blog/binaire/).

9.3.2. Articles and contents

- Nataliia Bielova has been interviewed by the Usine Digitale on 22 November 2019, title "Fuite massive de données à AccorHotels : ce que risque l'entreprise", https://www.usine-digitale.fr/article/fuite-massive-de-donnees-a-accorhotels-que-risque-l-entreprise.N906279.
- Nataliia Bielova has been interviewed by the L'OBS on 29 November 2019, title "Entre réalité augmentée et reconnaissance faciale, on a parcouru le supermarché de demain", https://www.nouvelobs.com/economie/20191129.OBS21725/entre-realite-augmentee-et-reconnaissance-faciale-on-a-parcouru-le-supermarche-de-demain.html.
- Nataliia Bielova and Tamara Rezk have contributed to the Inria white book on CyberSecurity, published in January 2019: https://hal.inria.fr/hal-01993308.
- The browser extension "Cookie Glasses" developed by Celestin Matte and Nataliia Bielova has been extensively discussed on the general public media due to a complaint made by NOYB to the CNIL on the GDPR and ePrivacy violations of several e-commerce websites: https://noyb.eu/say-no-to-cookies-yet-see-your-privacy-crumble/.

9.3.3. Education

- Nataliia Bielova: *Moderation and Animation of the MOOC Protection de la vie privée dans le monde numérique*, 05/2019-06/2019.

9.3.4. Interventions

- Nataliia Bielova made an intervention with high school students during Semaine De La Science with Cinesciences at the cinémathèque of Nice on 4 October 2019.
- Celestin Matte presented his work on "Tracage Wifi et Bluetooth" at the public event called "Pas Sage en Seine" in June 2019, https://programme.passageenseine.fr/.
- Nataliia Bielova made a presentation with BSc and MSc students during the ACM-W Ukrainian Chapter celebration on December 5, 2019, https://women.acm.org/2019-2020-celebrations/.
- Imane Fouad presented her work on "detection of third-party trackers" at Inria PhD Seminars in December 2019.

KERDATA Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organization

9.1.1.1. General Chair, Scientific Chair

Luc Bougé: Steering Committee Chair of the Euro-Par International Conference on Parallel and Distributed Computing. Euro-Par celebrated its 25th anniversary in Göttingen, Germany, this year.

Gabriel Antoniu: Co-Chair of Conv'2019 - the HPC-AI-Big Data Convergence Days.

9.1.1.2. Member of the Organizing Committees

Gabriel Antoniu: Member of the Organizing Committee of Conv'2019, the HPC-AI-Big Data Convergence Days.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

Gabriel Antoniu: Track Co-Chair for the Clouds and Distributed Systems Track of the ACM/IEEE SC19 conference, Denver, USA.

Alexandru Costan: Program Co-Chair of the ScienceCloud 2019 international workshop held in conjunction with ACM HPDC 2019, Phoenix, AZ, USA.

9.1.2.2. Member of the Conference Program Committees

Alexandru Costan: IEEE/ACM SC'19 (Technical Program: Cloud Track, Posters and ACM Student Research Competition), ACM/IEEE CCGrid 2019, IEEE Cluster 2019, IEEE/ACM UCC 2019, IEEE Big Data 2019, SCRAMBL 2019, CSCS 2019, CEBDA 2019, CCIW 2019, IEEE CSE 2018, IEEE CloudCom 2019.

Gabriel Antoniu: IEEE Cluster 2019, IEEE IPDPS 2019, STREAM-ML 2019.

9.1.2.3. Reviewer

Alexandru Costan: ACM HPDC 2019, IEEE IPDPS 2019.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Gabriel Antoniu: Associate Editor of JPDC, the Elsevier Journal of Parallel and Distributed Computing.

9.1.3.2. Reviewer - Reviewing Activities

Alexandru Costan: IEEE Transactions on Parallel and Distributed Systems, Future Generation Computer Systems, Concurrency and Computation Practice and Experience, IEEE Transactions on Cloud Computing, Journal of Parallel and Distributed Computing.

Gabriel Antoniu: SoftwareX, Philosophical Transactions A.

9.1.4. Invited Talks

Gabriel Antoniu

–   Fourth BDEC2 Workshop on Big Data and Extreme Computing, San Diego, in October 2019. *Towards a demonstrator of the Sigma Data Processing Architecture for BDEC 2.* URL: https://www.exascale.org/bdec/agenda/poznan.

– Third BDEC2 Workshop on Big Data and Extreme Computing, Poznan, in May 2019. *ZettaFlow: Towards High-Performance ML-based Analytics across the Digital Continuum.* URL: https://www.exascale.org/bdec/agenda/sandiego.

– Ninth Workshop of the Joint Laboratory for Extreme-Scale Computing (JLESC) in April 2019. *Scalable Data Ingestion for Stream Processing.* URL: https://jlesc.github.io/.

Alexandru Costan

– Inria/ IPN Joint Workshop, Mexico City, November 2019. *From Big Data to Fast Data: Efficient Stream Data Managements.*

9.1.5. Leadership within the Scientific Community

Luc Bougé: Co-Vice-President of the *French Society for Informatics* (*Société informatique de France*, SIF), in charge of the Teaching Department.

Gabriel Antoniu

ETP4HPC   Since 2019, co-leader of the working group on Programming Environments and co-lead of two research clusters, contributing to the next Strategic Research Agenda of ETP4HPC (to appear).

International lab management   *Vice Executive Director of JLESC* for Inria. JLESC is the Joint Inria-Illinois-ANL-BSC-JSC-RIKEN/AICS Laboratory for Extreme-Scale Computing. Within JLESC, he also serves as a *Topic Leader* for Data storage, I/O and in situ processing for Inria.

Team management   *Head of the KerData Project-Team* (Inria-ENS Rennes-INSA Rennes).

International Associate Team management   Leader of the UNIFY Associate Team with Argonne National Lab (2019–2021).

Technology development project management   Coordinator of the Damaris ADT project (2016–2018), to be continued with the Damaris 2 ADT project (2019–2021).

9.1.6. Scientific Expertise

Luc Bougé

HCERES: Chair of the evaluation committee for the CRIStAL joint laboratory, Lille (report)

HCERES: Member of the evaluation committee for the IRCICA research institute, Lille

9.1.7. Research Administration

Luc Bougé

ANR: Member of the management team for the IA for Humanity governmental program launched in March 2018. Bertrand Braunschweig, Inria, is the scientific director of the program.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Gabriel Antoniu

– Master (Engineering Degree, 5th year): Big Data, 24 hours (lectures), M2 level, ENSAI (*École nationale supérieure de la statistique et de l'analyse de l'information*), Bruz, France.

– Master: Scalable Distributed Systems, 10 hours (lectures), M1 level, SDS Module, EIT ICT Labs Master School, France.

– Master: Infrastructures for Big Data, 10 hours (lectures), M2 level, IBD Module, SIF Master Program, University of Rennes, France.

- Master: Cloud Computing and Big Data, 10 hours (lectures), M2 level, Cloud Module, MIAGE Master Program, University of Rennes, France.

Alexandru Costan

- Bachelor: Software Engineering and Java Programming, 28 hours (lab sessions), L3, INSA Rennes.
- Bachelor: Databases, 68 hours (lectures and lab sessions), L2, INSA Rennes, France.
- Bachelor: Practical case studies, 24 hours (project), L3, INSA Rennes.
- Master: Big Data Storage and Processing, 28h hours (lectures, lab sessions), M1, INSA Rennes.
- Master: Algorithms for Big Data, 28 hours (lectures, lab sessions), M2, INSA Rennes.
- Master: Big Data Project, 28 hours (project), M2, INSA Rennes.

Luc Bougé

- Bachelor: Introduction to programming concepts, 36 hours (lectures), L3 level, Informatics program, ENS Rennes, France.
- Bachelor: Introduction to scientific research, 24 hours. Research center visits, individual research project supervised by local researchers, student seminars, summer internships, etc.
- Master Program, Rennes: Invited presentation to the M2 students about *Preparing your applications after your PhD* (October 2019); *Informatics as a scientific activity: Towards a responsible research* (November 2019).

Pedro Silva

- Master: Algorithms for Big Data, 4 hours (lectures), M2, INSA Rennes.
- Master: Algorithms for Big Data, 6 hours (lab sessions), M2, INSA Rennes.

9.2.2. Supervision

9.2.2.1. HdR completed this year

Alexandru Costan: *From Big Data to Fast Data: Efficient Stream Data Management*, ENS Rennes, March 2019 [15].

9.2.2.2. PhD completed this year

Nathanaël Cheriere: *Towards Malleable Distributed Storage Systems? From Models to Practice*, ENS Rennes, thesis defended in November 2019, co-advised by Gabriel Antoniu and Matthieu Dorier [14].

9.2.2.3. PhD in progress

Daniel Rosendo: *Enabling HPC-Big Data Convergence for Intelligent Extreme-Scale Analytics*, INSA Rennes, thesis started in October 2019, co-advised by Gabriel Antoniu, Alexandru Costan and Patrick Valduriez (Inria).

Paul Le Noac'h: *Workflow Data Management as a Service for Multi-Site Applications*, INSA Rennes, thesis started in November 2016, co-advised by Luc Bougé and Alexandru Costan. Thesis stopped in February 2019.

9.2.3. Juries

Luc Bougé: Member of the jury the *CAPES of mathématiques*, *Informatics track*. This national committee selects more than 1000 mathematics teachers per year for French secondary schools and high-schools.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

Alexandru Costan

- In charge of internships at the Computer Science Department of INSA Rennes.
- In charge of the organization of the IRISA D1 Department Seminars.

<p align="center" style="color:red">MARACAS Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

- Interview to Samir M. Perlaza "A view of the Internet of Things", Cognitive Networks Technical Committee Newsletter, IEEE Communications Society, vol. 5, No. 1, May 2019

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Samir Perlaza: Chair of two special sessions: "Energy Harvesting and Wireless Powered Communications" hosted at the 20th IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), July 2-5, 2019, Cannes, France. "Data Analytics for Power Systems" hosted at the 2019 IEEE Data Science Workshop, June 2-5, 2019, Minneapolis, MN, USA.
- Samir Perlaza: Chair of three international Workshops: "Mathematical Tools for IoT Networks Modeling (MOTION)" hosted at the IEEE Wireless Communications and Networking Conference (WCNC). April, 15-18 2019, Marrakech, Morocco. "Resource Allocation, Cooperation and Competition in Wireless Networks (RAWNET)", June 19, 2020, Volvos, Greece. Workshop on Information and Decision Making. A satellite event of the IEEE International Symposium on Information Theory (ISIT), Institut Henri Poincaré, Paris, France, July 10, 2019.
- Samir Perlaza: Publication Chair of the International Symposium on Information Theory (ISIT), July, 2018, Paris, France. (Main conference of the IEEE Information Theory Society)

10.1.1.2. Member of the Organizing Committees

- Leonardo S. Cardoso: Organization and Scientific Commitee of the European GNU Radio Days 2019, June, 2019, Besançon, France.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

1. Leonardo S. Cardoso
   - IEEE International Conference on Communications (ICC). 7-11 June, 2020, Dublin, Ireland. Member of the Technical Program Committee of the Wireless Communications Symposium.
   - IEEE WCNC 2019, 2020
   - EuCNC 2019, 2020
2. Malcolm Egan
   - IEEE Global Communications Conference (GLOBECOM) 2019, 2020
   - IEEE International Conference on Communications (ICC). 7-11 June, 2020, Dublin, Ireland. Member of the Technical Program Committee of the Wireless Communications Symposium.
   - ACM NanoCommunications Conference (NanCom) 2019, 2020
   - International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS) 2019
3. Jean-Marie Gorce
   - APCC 2019, 2020
   - WF-5G 2019, 2020

    – PIMRC 2019

4. Claire GOURSAUD

    – IEEE ICASSP 2019

5. Samir Perlaza

    – IEEE International Conference on Communications (ICC). 7-11 June, 2020, Dublin, Ireland. Member of the Technical Program Committee of the Wireless Communications Symposium.

    – IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2020) 31 August – 3 September, 2020, London, UK. Member of the Technical Program Committee, Track 3: Mobile and Wireless Networks.

    – International Conference on Computing, Networking and Communications (ICNC). 18-21 February, 2019, Honolulu, Hawaii, USA. Member of the Technical Program Committee.

    – IEEE International Conference on Communications (ICC). 20-24 May 2019, Shanghai, China. Member of the Technical Program Committee of the Wireless Communications Symposium.

    – IEEE Global Communications Conference (Globecom). 9-13 December 2018, Abu Dhabi, UAE. Member of the Technical Program Committee of Workshop on Green and Sustainable 5G Wireless Networks.

    – IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2018) 9-12 September 2018, Bologna, Italy. Member of the Technical Program Committee, Track 3: Mobile and Wireless Networks.

10.1.2.2. Reviewer

1. Malcolm Egan

    – IEEE ISIT 2019

2. Samir Perlaza

    – ISIT, ITW, Eusipco, VTC, Rawnet, WiOpt, GameComm, Globecom, Colcom, PIMRC, Crowncom, WCMC, W-GREEN, ICT, IWCMC, ICC, Infocom, among others.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

1. Malcolm Egan

    – Associate Editor IEEE Communications Letters

    – Guest Editor IEEE Access Special Section on Molecular Communication Networks

2. Jean-Marie Gorce

    – Associate Editor Springer Journal of Wireless Communications and Networking (JWCN)

3. Claire GOURSAUD

    – Associate Editor of European Transactions on Telecommunications (ETT)

    – Associate Editor of Internet Technologies Letters (ITL)

4. Samir Perlaza

    – Editor of the IEEE Transactions on Communications for the term 2018-2021 in the area of Simultaneous Information and Energy Transmission, Feedback and Applications of Game Theory in Wireless Communications. (One of the main journals of the IEEE Communication Society)

    – Associate Editor of the IET Smart Grid for the term 2018-2021.

    – Guest Editor of the IEEE Internet of Things Journal, Special Issue on Artificial Intelligence Powered Edge Computing for Internet of Things. Publication date: 2020.

10.1.3.2. Reviewer - Reviewing Activities

1. Malcolm Egan
   – IEEE Transactions on Information Theory
   – IEEE Transactions on Signal Processing
   – IEEE Transactions on Wireless Communications
   – IEEE Transactions on Communications
   – IEEE Transactions on NanoBioscience
   – IEEE Transactions on Molecular, Biological, and Multi-Scale Communications

2. Jean-Marie Gorce
   – IEEE Transactions on Wireless Communications

3. Claire Goursaud
   – IEEE Sensors
   – IEEE Transactions on Communications
   – IEEE Wireless Communication Letters
   – IEEE Internet of Things Journal

4. Samir Perlaza
   – IEEE Journal on Selected Areas in Communications, IEEE Journal on Selected Topics in Signal Processing, IEEE Trans. on Wireless Communications, IEEE Trans. on Communications, IEEE Trans on Vehicular Technologies, IEEE Communications Letters, IEEE Trans. on Mobile Computing, EURASIP Journal on Advances in Signal Processing, EURASIP Journal on Wireless Communications and Networking.

10.1.4. Invited Talks

1. Leonardo S. Cardoso
   – "Transmitter Classification with Supervised Deep Learning". Invited talk at CTTC, June 29, 2019, Barcelona, Spain.
   – "Exploring the Radio Spectrum with GNU Radio". Invited tutorial at European GNU Radio Days , June 19, 2019, Besançon, France..

2. Malcolm Egan
   – Invited Lecture, European School on Information Theory, April 15-19, Nice, 2019.
   – Invited Lecture, International Workshop on Mathematical Tools and Technologies for IoT and mMTC Networks Modeling, 15-18 April, Morocco, 2019.
   – Invited Paper, Third International Balkan Conference on Communications and Networking 2019, 10-12 June, North Macedonia, 2019.

3. Jean-Marie Gorce
   – Invited Paper, International Workshop on Mathematical Tools and Technologies for IoT and mMTC Networks Modeling, 15-18 April, Morocco, 2019.
   – Invited Paper, Special Session on Ultra-Reliable Low-Latency Communicationsgo to top at the 20th international workshop on signal processing advances in wireless communications, 2-5 July, France, 2019.
   – Invited talk entitled *Etat de l'art, focus sur la mobilité et prospectives des communications pour l'IoT*; lors de l'atelier IdéO *Quelles infrastructures numériques et quel IoT pour une mobilité intelligente ?* , organisé par les pôles de compétitivité Systematic and Moveo (regional poles), Paris, Jeudi 26 Sept 2019.

4. Samir Perlaza

- "Transforming Broadcast Codes to Perform Covert Communications". Invited talk at Department of Automatic Control and Systems Engineering, University of Sheffield, November 26, 2019, Sheffield, UK.
- "Transforming Broadcast Codes to Perform Covert Communications". Invited talk at Centre d'Enseignement et de Recherche en Informatique (CERI) Université d'Avignon, November 14, 2019, Avignon, France.
- "Simultaneous Information and Energy Transmission in Decentralized Networks". Invited talk at Inria, Centre de Recherche Sophia Antipolis Méditerranée, September 24, 2019, Sophia Antipolis, France.
- "Simultaneous Information and Energy Transmission Systems". Invited talk at Eurecom, September 26 2019, Sophia Antipolis, France.
- "On Ultra-Reliable and Low Latency Simultaneous Information and Energy Transmission Systems". Invited talk at Lappeenranta University of Technology, Finland. School of Energy Systems. April 08 2019. Lappeenranta, Finland
- "Information-Theoretic Security in the Smart Grid". Invited talk at Lappeenranta University of Technology, Finland. School of Energy Systems. April 07, 2019, Lappeenranta, Finland.
- "Simultaneous Wireless Information and Energy Transmission". Invited talk at Université de Lille. Institut d'électronique de microélectronique et de nanotechnologie (IEMN), October 4, 2018, Lille, France.

10.1.5. Scientific Expertise

- Jean-Marie Gorce
  - Chair of the evaluation committee for ETIS lab (Cergy) for HCERES.
  - Evaluator of research projects for Region Picardie.
  - Jury member of the senior researchers recruitment competition, Inria.

10.1.6. Research Administration

- Jean-Marie Gorce was:
  - Vice-head for research for the Grenoble Rhone-Alpes research centre.
  - Member (representative for Inria) of the Groupe Academique for University of Lyon.
  - Member of the national evaluation committee, Inria.
- Claire Goursaud was:
  - elected as a CNU member in the 61th section for 2019-2024
- Samir Perlaza was:
  - Member of the On-Line Committee of the IEEE Information Theory Society.
  - Membre du Conseil du Laboratoire CITI à l'INSA de Lyon. Term 2015 - 2019.
  - Committé du Prix Paul CASEAU for the 2017 edition of the thesis award.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master : JM Gorce, M Egan, L Chetot Advanced Digital Communications, 40h eq TD, M1, Telecommunications dept, INSA Lyon, France.

Master : JM Gorce, M Egan, D Duchemin Radio Access Networs, 32h eqTD, M1, Telecommunications dept, INSA Lyon, France.

Master : S Perlaza, JM Gorce, Selected Topics in Information Theory, 32h eqTD, M2, Compute sciences dept, ENS Lyon, France.

Master : L Cardoso, C Morin, Software Radio, 32h eqTD, M2, Telecommunications dept, INSA Lyon, France.

Licence : L Cardoso, C Goursaud, Digital Communications, 80h eqTD, L3, Telecommunications dept, INSA Lyon, France.

Licence : L Cardoso, C Goursaud, Research projetcs, 32h eqTD, L3, Telecommunications dept, INSA Lyon, France.

Master : C Goursaud, Communications Systems, 32h eqTD, M1, Telecommunications dept, INSA Lyon, France.

License : L Cardoso, Electromagnetism and Wave Physics, 104 eqTD, L2, First Cycle Dept, INSA Lyon, France.

License : L Cardoso, Mathematics for Engineering, 60h eqTD, L1, First Cycle Dept, INSA Lyon, France.

10.2.2. Supervision

PhD : David Kibloff, Contributions Théoriques sur les Communications Furtives, INSA Lyon, 17 sept 2019, Samir Perlaza and Guillaume Villemaud.

PhD: Trang Mai, Advanced Technologies in Molecular and Wireless Communication Networks: Analysis, Design and Optimization, Queen's University Belfast, 30 Dec 2019, Trung Duong, Malcolm Egan, and Hien Quoc Ngo.

PhD in progress : Dadja Toussaint Anade-Akpo, Non-asymptotic fundamental limits of impulsive radio communications, 01 oct 2017, Philippe Mary and Jean-Marie Gorce.

PhD in progress : Lélio Chetot, From finite blocklength information theory to multi-user M2M communication protocols, 01 oct 2018, Malcolm Egan and Jean-Marie Gorce.

PhD in progress : Diane Duchemin, Distributed coding for dense IoT networks, October 2016, Claire Goursaud and Jean-Marie Gorce

PhD in progress : Mathieu Goutay, Prédistortion digitale profonde, 01 Feb 2019, Jakob Hoydis and Jean-Marie Gorce.

PhD in progress : Hassan Kallam, Topology aided Multi-User Interference Management in Wireless Networks, 01 Feb 2017, Loonardo S. Cardoso and Jean-Marie Gorce.

PhD in progress : José Rugelles, Deep Learning for Security in GSM Based IoT Systems, 01 Jan 2017, Loonardo S. Cardoso and Edward Guillén.

PhD in progress : Nizar Khalfet, Study of stochastique energy sources to power communication system, 07 nov 2016, Samir Perlaza and Jean-Marie Gorce.

PhD in progress : Cyrille Morin, Deep learning for next generation communication systems, 20 Feb 2018, Leonardo S. Cardoso and Jean-Marie Gorce.

PhD in progress : Ce Zheng, Statistical models for IoT interference, Commenced Oct 2018, Malcolm Egan and Laurent Clavier.

Xiuzhen Ye - Academic Period: 2019 - 2022 – University of Sheffield, Department of Automatic Control and Systems Engineering, Sheffield, UK. Taux d'encadrement : Iñaki Esnaola (University of Sheffield, UK) 50%; and Rob Harrisson (University of Sheffield, UK) 25% and Samir Perlaza (external advisor) 25% Publications: Several under preparation. Thesis Title: Data Injection Attacks in Power Systems

Michalis Eliodorous – PhD Student at University of Cyprus (on-going collaboration during during his PhD)

10.2.3. Juries

1. Leonardo Cardoso
   - Examiner; Thesis Jury for Sumit Kumar supervised by Florian Kaltenberger in Institut Eurecom (Telecom Paristech), Sophia Antipolis, 12 March 2019.
   - Examiner; Thesis Jury for Nicolas Araújo supervised by Laurent Clavier in the University de Lille, Lille, 11 July 2019.

2. Malcolm Egan
   - Examiner; Thesis Jury for Pierre Escamilla supervised by Michele Wigger and Abdellatif Zaidi in Telecom ParisTech
   - Invited; Thesis Jury for Yasser Mestrah supervised by Laurent Clavier in the University of Reims Champagne-Ardenne and IMT Lille Douai

3. Jean-Marie Gorce
   - Reviewer; Thesis jury for Gourab Ghatak supervised by Antonio De Domenico (CEA) and Marceau Coupechoux, Telecoms Paris, IMT. 24 janv 2019.
   - Chair; Thesis jury for Alexandre Marcastel, supervised by Veronica Belmega ,Panayotis Mertikopoulos and Inbar Fijalkow, ETIS, Cergy. 21 Feb 2019.
   - Reviewer; HdR jury for Veronica Belmega , ETIS, Cergy. 29 March 2019.
   - Reviewer; HdR jury for Thomas Watteyne, Inria, Sorbonne University. 7 May 2019.
   - Examiner; Thesis jury for Abir Ben Hadj Fredj, supervised by Jean-Claude Belfiore and Ghaya Rekaya-Ben Othman, Telecoms Paris, IMT. 28 June 2019.
   - Examiner; Thesis jury for David Kibloff, supervised by Samir Perlaza and Guillaume Villemaud, INSA Lyon. 17 Sept 2019.
   - Reviewer; HdR jury for Marios Kountouris, Telecoms Paris, IMT. 17 Oct 2019.
   - Reviewer; Thesis jury for Selma Zamoum, supervised by Marie-Laure Boucheret and Jérôme Lacan, Université de Toulouse. 28 Nov 2019.
   - Reviewer; Thesis jury for Kaoutar Abdelalim supervised by Karine Amis and Getachew Redieteab, IMT Atlantique. 9 Dec 2019.
   - Reviewer; Thesis jury for Ibrahim Fawaz, supervised by Philippe Ciblat and Mireille Sarkiss, Telecoms Paris, IMT. 9 Dec 2019.
   - Reviewer; Thesis jury for Marc Kacou, supervised by Valery Guillet, Gheorghe Zaharia, and Ghais El Zein, INSA Rennes. 12 Dec 2019.
   - Reviewer; Thesis jury for Xiaojun Xi supervised by Marco Di Renzo, Supelec, Université Paris Saclay. 19 Dec 2019.
   - Examiner; Thesis jury for Jian Song supervised by Marco Di Renzo, Supelec, Université Paris Saclay. 19 Dec 2019.

4. Claire Goursaud
   - Reviewer for Alex The Phuong Nguyen supervised by Frederic Guilloud and Raphaêl Le Bidan, IMT Atlantique

5. Samir Perlaza
   - Miguel Arrieta, Phd Thesis "Universal Privacy Guarantees for Smart Meters" at the Department of Automatic Control and Systems Engineering, University of Sheffield, November 29 2019, Sheffield, UK.
   - Ms. Nihan Cicek, Mphil Thesis "Probabilistic Energy Management Systems in PV-Rich Communities" Electrical & Electronic Engineering, The University of Melbourne, Australia

<h1 style="text-align:center;color:red">MIMOVE Project-Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- R. Teixeira, member of the selection committee of the Heidelberg Laureate Forum 2019–2021.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- V. Issarny, TPC co-chair of: The International Conference on the IoT (ICIOT) at SCF'19 (June 2019, San Diego, CA, USA); and The 5th 2CM/IEEE Conference on Internet of Things Design & Implementation (IoTDI) at CPS-IoT week (April 2020, Sydney, Australia).

10.1.2.2. Member of the Conference Program Committees

- V. Issarny, member of the TPC of the following international conferences: IEEE CIC'19, ACM EUROSYS'20 (Heavy PC), ACM ESEC/FSE'19, IEEE ICDCS'20, ICSE'20, ICSE-SEIS'19 & 20, ACM/IEEE IoTDI'19, and ACM/IFIP Middleware'19.
- R. Teixeira, member of the TPC of: USENIX Symposium on Networked Systems Design and Implementation (NSDI) 2020, Passive and Active Measurement Conference (PAM) 2020, and the Buffer Sizing Workshop 2019.
- N. Georgantas, member of the TPC of the following international conferences: SAC'19&'20, SOSE'19&'20, The Web Conference'19&'20.
- N. Georgantas, member of the TPC of the following international workshops: MRT'19, IoT-ASAP'19, ARM'19, ASYDE'19.
- V. Christophides, member of the TPC of the EDBT/ICDT 2020 Joint Conference, IEEE ICDE 2020, and the 28th ACM International Conference on Information and Knowledge Management (CIKM).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- V. Issarny, member of the following editorial boards: The ACM Transaction on Autonomous and Adaptive Systems (TAAS), The ACM Transactions on the Internet of Things (TIOT), The IEEE Transactions on Services Computing (TSC), and The IEEE Transactions on Software Engineering (TSE).
- N. Georgantas, Associate editor, International Journal of Ambient Computing and Intelligence (IJACI).
- V. Christophides, Associate editor, MDPI Open Access Journal of Internet of Things (IoT) and MDPI Open Access Journal of Future Internet.

10.1.4. Invited Talks

- R. Teixeira "Passive Measurements of Residential Internet Performance", Google Networking Summit, 2019.
- R. Teixeira, "Lightweight, General Inference of Streaming Video Quality from Encrypted Traffic", Workshop em ciencia de dados LNCC, Brazil, 2019.
- N. Georgantas, "Enabling Emergent Mobile IoT Systems: Middleware Interoperability & QoS Analysis", Eclipse IoT Day Paris Saclay 2019.

- V. Christophides, "Detecting Outliers in IoT Data Streams", IRT SystemX, 2019.

10.1.5. Leadership within the Scientific Community

- V. Christophides, Member of the Executive Board of the EDBT Association.

10.1.6. Scientific Expertise

- V. Issarny, member of: the FWP expert panel for PhD fellowships on strategic basic research, and the expert panel of the 2019 FET open call.
- V. Issarny, member of: the ARCEP Scientific Council (appointed), and The ACM Europe Council (Elected).
- N. Georgantas, member of: the EDITE Doctoral School selection committe for PhD fellowships, 2018 & 2019 .

10.2. Teaching - Supervision - Juries

10.2.1. Supervision

PhD: Sara el Aouad, "Personalized, Aspect-based Summarization of Movie Reviews", Sorbonne Université, April 26, 2019, R. Teixeira, V. Christophides, C. Diot.

PhDs in progress:

- Yifan Du (Since October 2017): "In-network collaborative crowd-Xing", Sorbonne University, V. Issarny and F. Sailhan (CNAM)
- Grigoris Piperagkas (Since October 2018): "Leveraging universal social networking and the IoT for urban-scale participatory systems", Sorbonne University, V. Issarny and R. Angarita (ISEP).
- William Aboucaya (Since October 2019): "Version control for urban participatory systems", Sorbonne University, V. Issarny and R. Angarita (ISEP).
- Dimitris Tsolovos (Since March 2017): "A privacy-by-design middleware for urban-scale mobile crowdsensing", UVSQ, N. Anciaux (Inria PETRUS @ Saclay) and V. Issarny.
- Patient Ntumba (Since August 2018): "Dynamic management of IoT data stream analytics in the edge-fog-cloud continuum", Sorbonne University, N. Georgantas and Vassilis Christophides.

10.2.2. Juries

- V. Issarny, member of the following juries: Christian Cabrera (11/19, PhD, Trinity College Dublin, Ireland), Gilles Tredan (06/19, HDR, University of Toulous), and Nic Volanschi (11/19, HDR, University of Bordeaux).

Myriads Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Member of the Organizing Committees

- Guillaume Pierre is a member of the ACM/IFIP Middleware steering committee.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Guillaume Pierre is co-chair of the Intelligent Systems and Infrastructure track of the TheWebConf 2020 conference.
- Anne-Cécile Orgerie is co-chair of the Architecture and Networking track of the IEEE/ACM CCGrid 2019 conference.
- Anne-Cécile Orgerie is global co-chair of the Cluster and Cloud Computing track of the EuroPar 2019 conference.

9.1.2.2. Member of the Conference Program Committees

- Guillaume Pierre was a PC member of the TheWebConf 2019 conference.
- Guillaume Pierre was a PC member of the ACM/IEEE CCGRID 2019 conference.
- Guillaume Pierre was a PC member of the ACM/IFIP Middleware 2019 conference.
- Guillaume Pierre was a PC member of the Conpas 2019 conference.
- Guillaume Pierre was a PC member of the InterCloud-HPC 2019 workshop.
- Mozhdeh Farhadi was a PC member of the CIFS 2019 workshop.
- Anne-Cécile Orgerie was a PC member of the IEEE HiPC 2019 conference.
- Anne-Cécile Orgerie was a PC member of the ICA3PP 2019 conference.
- Anne-Cécile Orgerie was a PC member of the IEEE/ACM CCGrid 2019 conference.
- Anne-Cécile Orgerie was a PC member of the ICPP 2019 conference.
- Anne-Cécile Orgerie was a PC member of the AlgoTel 2019 conference.
- Anne-Cécile Orgerie was a PC member of the IEEE IC2E 2019 conference.
- Cédric Tedeschi was a PC member of the ICPP 2019 conference.
- Cédric Tedeschi was a PC member of the IEEE ICWS 2019 conference.
- Cédric Tedeschi was a PC member of the Conpas 2019 conference.
- Nikos Parlavantzas was a PC member of the UCC 2019 conference.
- Nikos Parlavantzas was a PC member of the CloudCom 2019 conference.
- Nikos Parlavantzas was a PC member of the ISPDC 2019 conference.
- Nikos Parlavantzas was a PC member of the CrossCloud 2019 workshop.
- Nikos Parlavantzas was a PC member of the VHPC 2019 workshop.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Anne-Cécile Orgerie is member of the editorial board of International Journal of Distributed Sensor Networks, SAGE Publishing.

9.1.3.2. Reviewer - Reviewing Activities

- Guillaume Pierre reviewed one article for the IEEE Networking Letters.
- Guillaume Pierre reviewed one article for the Software: Practice and Experience journal.
- Cédric Tedeschi reviewed one article for the TPDS journal.
- Nikos Parlavantzas reviewed one article for the Applied Computing and Informatics journal.
- Marin Bertier reviewed one article for the Journal of Supercomuting.
- Martin Quinson reviewed one article for the Journal of Computational Design and Engineering.

9.1.4. Invited Talks

- Guillaume Pierre gave a keynote speech at the IEEE CloudNet 2019 conference: "From Cloud to Fog: The Tao of IT Infrastructure Decentralization."
- Anne-Cécile Orgerie gave a seminar at LORIA lab in September 2019.
- Anne-Cécile Orgerie gave a seminar at the scientific council of INS2I in September 2019.
- Anne-Cécile Orgerie gave a talk at the Cloud Control Workshop in June 2019.
- Martin Quinson gave a talk at the "Algorithmes et programmation" workshop, at Centre International des Rencontres Mathématiques (CIRM) in May 2019.

9.1.5. Leadership within the Scientific Community

- Anne-Cécile Orgerie is vice-chair of ASF, the French Chapter of ACM SIGOPS.

9.1.6. Scientific Expertise

- Jean-Louis Pazat is the coordinator of experts in Information Technology for the evaluation of international bilateral collaborations at the ministry of research and education.

9.1.7. Research Administration

- Anne-Cécile Orgerie is an officer (chargée de mission) for the IRISA cross-cutting axis on Green IT.
- Martin Quinson is the leader of the "Large Scale Systems" department of IRISA.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Bachelor: Marin Bertier, Networks, Département Informatique L3, Insa Rennes.

Bachelor: Marin Bertier, Language C, Département Informatique L3, Insa Rennes.

Bachelor: Marin Bertier, Language C, Département Mathématique L3, Insa Rennes.

Bachelor: Jean-Louis Pazat, Introduction à la programmation, L1, Département STPI, INSA de Rennes.

Bachelor: Jean-Louis Pazat, Calcul Hautes Performances, Département Informatique L3, Insa Rennes.

Bachelor: Jean-Louis Pazat, Calcul Hautes Performances, Département Mathematiques L3, Insa Rennes.

Bachelor: Guillaume Pierre, Systèmes Informatiques, L3 MIAGE, Univ. Rennes 1.

Bachelor: Guillaume Pierre, Systèmes d'exploitation, L3 Informatique, Univ. Rennes 1.

Bachelor: Martin Quinson, Architecture et Systèmes, 60 hETD, L3 Informatique, ENS Rennes.

Bachelor: Martin Quinson, Pedagogy, 15 hETD, L3 Informatique, ENS Rennes.

Master: Marin Bertier, Operating Systems, Département Informatique M1, INSA de Rennes

Master: Marin Bertier, Distributed systems, Département Informatique M2, INSA de Rennes

Master: Anne-Cécile Orgerie, Cloud & Big Data, 30 hETD, M1, ENS Rennes.

Master: Anne-Cécile Orgerie, Green ICT, 4.5 hETD, M2, Telecom SudParis Evry.

Master: Anne-Cécile Orgerie, Green ICT,3 hETD, M2, ENSSAT Lannion.

Master: Anne-Cécile Orgerie, Green IT, 6 hETD, M1, INSA Rennes.

Master: Nikos Parlavantzas, Clouds, M1, INSA Rennes.

Master: Nikos Parlavantzas, Performance Evaluation, M1, INSA Rennes.

Master: Nikos Parlavantzas, Project in Large-Scale Systems, M2, INSA Rennes.

Master: Nikos Parlavantzas, Big Data and Applications, M1, INSA Rennes.

Master: Jean-Louis Pazat, Parallel Computing, M1 Département Informatique Insa Rennes.

Master: Jean-Louis Pazat, Internet Of Things, M1 & M2 Département Informatique Insa Rennes.

Master: Guillaume Pierre, Distributed Systems, M1, Univ. Rennes 1.

Master: Guillaume Pierre, Service technology, M1, Univ. Rennes 1.

Master: Guillaume Pierre, Techniques de développement pour le cloud, M2, Univ. Rennes 1.

Master: Guillaume Pierre, Advanced Cloud Infrastructures, M2, Univ. Rennes 1.

Master: Martin Quinson, Préparation à l'Agrégation de Science Industrielle (Programming and Software Engineering, 20h ETD; Operating Systems and C programming, 20 hETD; Networking, 20h ETD), ENS Rennes.

Master: Martin Quinson, Scientific Outreach, M2, 30 hEDT, ENS Rennes.

Master: Cédric Tedeschi, Concurrency in Systems and Networks, M1, Univ. Rennes 1.

Master: Cédric Tedeschi, Service Technology, M1, Univ. Rennes 1.

Master: Cédric Tedeschi, Parallel Programming, M1, Univ. Rennes 1.

Master: Cédric Tedeschi, Systems, L3, Univ. Rennes 1.

9.2.2. Supervision

Defended PhD: Genc Tato, "Locality-aware Lazy Overlay Networks for WANs," defended on December 19th 2019, supervised by Marin Bertier, Cédric Tedeschi.

Defended PhD: The Anh Pham, "Dynamic Formal Verification of High Performance Runtimes and Applications," defended on December 6th 2019, supervised by Martin Quinson, Thierry Jéron.

Defended PhD: Amir Teshome Wonjiga, "User-Centric Security Monitoring in Cloud Environments", defended on June 3rd 2019, supervised by Louis Rilling and Christine Morin.

PhD in progress: Adrien Gougeon, "Designing an energy-efficient communication network for the dynamic and distributed control of the electrical grid", started in September 2019, supervised by Anne-Cécile Orgerie and Martin Quinson.

PhD in progress: Paulo Rodrigues De Souza Junior, "fog computing service roaming techniques", started in December 2018, supervised by Guillaume Pierre and Daniele Miorandi (U-Hopper srl, Italy).

PhD in progress: Davaadorj Battulga, "Scalable data pipelines for fog computing applications", started in September 2018, supervised by Cédric Tedeschi and Daniele Miorandi (U-Hopper srl, Italy).

PhD in progress: Mulugeta Tamiru, "Automatic optimization of autonomous management systems", started in September 2018, supervised by Guillaume Pierre and Erik Elmroth (Elastisys AB, Sweden).

PhD in progress: Mozhdeh Farhadi, "Fog computing-enabled IoT situation-aware services", started in June 2018, supervised by Guillaume Pierre and Daniele Miorandi (U-Hopper srl, Italy).

PhD in progress: Hamidreza Arkian, "Stream processing operator placement", started in June 2018, supervised by Guillaume Pierre and Erik Elmroth (Elastisys AB, Sweden).

PhD in progress: Mehdi Belkhiria, "Dynamic Stream Processing for Maritime Traffic Surveillance," started in December 2017, supervised by Cédric Tedeschi.

PhD in progress (*co-tutelle*): Yasmina Bouizem, "Energy-efficient, fault-tolerance mechanisms for containerized cloud applications," started in December 2017, supervised by Didi Fedoua (Tlemcen University, Algeria), Djawida Dib (Tlemcen University, Algeria), Christine Morin and Nikos Parlavantzas.

PhD in progress: Ali Jawad Fahs, "Decentralized Fog Computing Infrastructure Control", started in October 2017, supervised by Guillaume Pierre.

PhD in progress: Clément El Baz, "Reactive security monitoring in clouds," started in October 2017, supervised by Louis Rilling and Christine Morin.

PhD in progress: Loic Guegan, "Simulating Internet of Things", started in October 2017, supervised by Martin Quinson and Anne-Cécile Orgerie.

PhD in progress: Dorra Boughzala, "Simulating Energy Consumption of Continuum Computing between Heterogeneous Numerical Infrastructures in HPC", started in December 2017, supervised by Laurent Lefèvre (Avalon team in Lyon), Anne-Cécile Orgerie and Martin Quinson.

PhD in progress: Arif Ahmed, "Scalable Decentralized Edge Cloud Infrastructures", started in October 2016, supervised by Guillaume Pierre.

PhD in progress: Baptiste Goupille-Lescar, "Designing agile, distributed cyber-physical systems with advanced collaboration capabilities", started in January 2016, supervised by Eric Lenormand (Thales), Christine Morin, Nikos Parlavantzas.

PhD in progress: Bruno Stevant, "Resource allocation strategies for service distribution at the Internet edge to optimize end-to-end latency," started in December 2014 (part-time), supervised by Jean-Louis Pazat.

9.2.3. *Juries*

- Guillaume Pierre chaired the PhD committee of Alexandre Veith, ENS Lyon, September 23rd 2019.
- Guillaume Pierre chaired the PhD committee of Jad Darrous, ENS Lyon, December 17th 2019.
- Martin Quinson chaired the PhD committee of Pierre Huchant, Ecole Nationale Supérieure d'Électronique, Informatique, Télécommunications, Mathématique et Mécanique de Bordeaux (ENSEIRB-MATMECA), March 29th 2019.
- Anne-Cécile Orgerie is a member of the jury for *Agrégation externe de Sciences Industrielles de l'Ingénieur option ingénierie informatique.*
- Martin Quinson is a member of the jury for *Capes d'informatique.*
- Anne-Cécile Orgerie was a member of the PhD committee of Ayham Kassab, Université de Franche-Comté, November 14th 2019.
- Anne-Cécile Orgerie was a member of the PhD committee of Gustavo Rostirolla, Université Toulouse 3, November 25th 2019.
- Louis Rilling was a member of the PhD committee of Guillaume Averlant, INSA Toulouse, October 2nd 2019.
- Louis Rilling was a guest of the PhD committee of Mohammad Mahdi Bazm, Université de Nantes, July 8th 2019.

9.3. Popularization

9.3.1. *Internal or external Inria responsibilities*

- Martin Quinson is on the scientific board of the Blaise Pascal foundation, boosting the scientific outreach in the domains of Maths and Computer Science.

9.3.2. Education

- Guillaume Pierre shared his experience as the coordinator of a H2020 Maria Skłodowska Curie Action project with CCRRDT, the Brittany Region's consultative committee for research and technological development. January 14th 2019.

- "L codent L créent" is an outreach program to send PhD students to teach Python to middle school students in 8 sessions of 45 minutes. Tassadit Bouadi (Lacodam), Camille Maumet (Empenn) and Anne-Cécile Orgerie (Myriads) are coordinating the local version of this program, initiated in Lille. The first session in Rennes occured in April 2019, and a new session has started for 2019-2020. The program is currently supported by: Fondation Blaise Pascal, ED MathSTIC, Université Rennes 1 and Fondation Rennes 1.

- "J'peux pas, j'ai informatique" is an outreach program to deconstruct IT stereotypes. Organized over one day, this program welcomes 110 college students (5ème) each year and is coordinated by Anne-Cécile Orgerie. The next event is planned in April 2020.

- Martin Quinson participated to the DIU EIL (Enseigner l'Informatique au Lycée), training existing maths and enginering teachers so that they can teach Informatics in their colleges.

- Martin Quinson is in charge of a M2 lecture on scientific vulgarization at ENS Rennes. The students are asked to come up with new activities (or improve existing ones) on their research field.

- Martin Quinson gave a doctoral teaching on December 13 on scientific outreach targeting either schools or science forums at IRISA laboratory.

9.3.3. Internal action

- Anne-Cécile Orgerie, Martin Quinson and Matthieu Simonin: organize experimenter meetings for the large-scale systems department of IRISA: https://xug.gitlabpages.inria.fr/meetings/

9.3.4. Creation of media or tools for science outreach

- Martin Quinson is working on a set of new outreach activities with his Master 2 class at ENS Rennes since several years. The most promising activities are then tested on field in schools during another lecture at ENS Rennes, at Licence 3 level. All available resources are freely available at https://github.com/InfoSansOrdi/pedago-rennes/.

NEO Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Eitan Altman was the general chair of the 12th EAI International Conference on Performance Evaluation Methodologies and Tools (VALUETOOLS 2019), Palma de Mallorca, Spain, 13-15 March 2019;
- Konstantin Avrachenkov co-organized the 16th Workshop on Algorithms and Models for the Web Graph (WAW 2019), University of Queensland, Brisbane, Australia, 6-7 July 2019;
- Eitan Altman is chairman of the Steering committee of the workshop NetGCoop - Networking Games, Control and Optimisation;
- Eitan Altman is member of the steering committee of the conferences WiOpt and Valuetools.

10.1.1.2. Member of the Organizing Committees

- Giovanni Neglia was publicity co-chair of the 20th International Symposium on Mobile Ad Hoc Networking and Computing (ACM MobiHoc 2019), Catania, Italy, 2-5 July 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Konstantin Avrachenkov was the co-chair of the 16th Workshop on Algorithms and Models for the Web Graph (WAW 2019), University of Queensland, Brisbane, Australia, 6-7 July 2019.
- Konstantin Avrachenkov was the co-chair of the 9th EAI International Conference on Game Theory for Networks (GameNets 2019), Paris, France, April 25-26, 2019.

10.1.2.2. Member of the Conference Program Committees

- ACM Sigmetrics / IFIP Performance 2019 (Phoenix, Arizona, USA) (S. Alouf, K. Avrachenkov);
- ACM Sigmetrics 2020 (Boston, Massachusetts, USA) (S. Alouf);
- IEEE Intl. Conf. on Computer Communications (INFOCOM 2020, Beijing, China) (G. Neglia);
- 39th IEEE Intl. Conf. on Distributed Computing Systems (ICDCS 2019, Dallas, Texas, USA) (K. Avrachenkov);
- 27th IEEE Intl. Conf. on Network Protocols (ICNP 2019, Chicago, Illinois, USA) (K. Avrachenkov);
- 25th Intl. Conf. on Analytical & Stochastic Modelling Techniques & Applications (ASMTA 2019, Moscow, Russia) (K. Avrachenkov);
- 10th Conf. on Decision and Game Theory for Security (GameSec 2019, Stockholm, Sweden) (K. Avrachenkov);
- 8th Intl. Conf. on Complex Networks and their Applications (Lisbon, Portugal) (K. Avrachenkov);
- 26th Intl. Conf. on Telecommunications (ICT 2019, Hanoi, Vietnam) (K. Avrachenkov);
- SIAM Conf. on Control and Its Applications (CT19, Chengdu, China) (K. Avrachenkov);
- SIAM Intl. Conf. on Data Mining (SDM19, Calgary, Canada) (K. Avrachenkov);
- 20th Conf. of the Société Française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF 2019, Le Havre, France) (A. Jean-Marie);

- 7th Symposium on Control, Automation, Industrial Informatics and Smart Grid (ICAIS'19, Trivandrum, Kerala, India) (K. Avrachenkov);
- 16th Intl. Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt 2019, Avignon, France) (K. Avrachenkov);
- 16th European Performance Engineering Workshop (EPEW2019, Milan, Italy) (A. Jean-Marie);
- IEEE INFOCOM Workshop on the Communications and Networking Aspects of Online Social Networks (CAOS'19, Paris, France), (G. Neglia);
- 21st Workshop on MAthematical performance Modeling and Analysis (MAMA 2019, Phoenix, USA) (A. Jean-Marie).

10.1.2.3. Reviewer

- 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020, London, Canada) (A. Jean-Marie);
- Forum on Specification & Design Languages (FDL 2019, Southampton, UK) (S. Alouf).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- *ACM Transactions on Modeling and Performance Evaluation of Computing Systems (ACM ToMPECS)* (K. Avrachenkov);
- *AIMS: Journal of Dynamic Games* (E. Altman);
- *Elsevier Computer Communications (COMCOM)* (G. Neglia);
- *Elsevier International Journal of Performance Evaluation (PEVA)* (K. Avrachenkov);
- *IEEE Transactions on Mobile Computing* (G. Neglia);
- Editor at large in *IEEE/ACM Transaction of Networking* (E. Altman);
- *Probability in the Engineering and Informational Sciences* (K. Avrachenkov);
- *Springer: Dynamic Games and Applications* (E. Altman);
- *Stochastic Models* (K. Avrachenkov);
- *Wiley Transactions on Emerging Telecommunications Technologies (ETT)* (S. Alouf).

10.1.3.2. Reviewer - Reviewing Activities

- *Dynamic Games And Applications* (A. Jean-Marie);
- *Elsevier Computer Networks* (G. Neglia);
- *Elsevier International Journal of Performance Evaluation* (PEVA) (S. Alouf);
- *EURO Journal on Computational Optimization* (A. Jean-Marie);
- *IEEE Internet of Things Journal* (C. Xu);
- *IEEE Networking Letters* (G. Neglia);
- *IEEE/ACM Transactions on Mobile Computing (TMC)* (G. Neglia);
- *IEEE/ACM Transactions on Networking (ToN)* (G. Neglia);
- *Journal of Economic Dynamics and Control* (A. Jean-Marie);
- *Theoretical Computer Science (TCS)* (A. Jean-Marie).

10.1.4. Tutorials, Invited Talks

- E. Altman gave a tutorial on "Network Games" at the Workshop on Network, population and congestion games (NPCG19) 17 April, Paris, France.
- G. Neglia gave an invited talk on "Machine Learning Training: Research Challenges and Opportunities for Distributed Computing" at the International Workshop on Distributed Cloud Computing (DCC), 18 October, Budapest, Hungary.

- C. Xu gave an invited talk on "Dynamic back up workers in distributed machine learning" at Sun Yat-sen University, September 3, Guangzhou, China.

10.1.5. Leadership within the Scientific Community

S. Alouf

- – has been elected for two years at the Board of Directors of ACM SIGMETRICS.
- – is a member of the Equality and Diversity committee of ACM SIGMETRICS.
- – is a member of the Conference Advisory committee of ACM SIGMETRICS.

E. Altman

- – is a fellow member of IEEE (Class of 2010).
- – is a fellow member of EAI (Class of 2019)
- – is an elected member of IFIP WG 7.3 on "Computer System Modeling".
- – is a member of WG 6.3 of IFIP on Performance of Communication Systems.

K. Avrachenkov

- – is a member of the scientific committee for Labex UCN@Sophia;
- – is a member of Conseil Scientifique & Pédagogique EUR DS4H Université Côte d'Azur;

A. Jean-Marie

- – is a member of the Steering Committee of the GDR RO, a national research initiative on Operations Research sponsored by the CNRS;
- – is an elected member of IFIP WG 7.3 on "Computer System Modeling".

G. Neglia   is member of the scientific animation committee for the IDEX UCA$^{\text{JEDI}}$ research program "Social Interactions and Complex Dynamics" since 2017.

10.1.6. Scientific Expertise

Giovanni Neglia is a consultant for the startup Payback Network in the period November 2019 - January 2020. The consultancy is on differential privacy techniques.

10.1.7. Research Administration

S. Alouf

- – is member of CLF, the training committee of Inria Sophia Antipolis Méditerranée, since November 2014;
- – is vice-head of project-team NEO since January 2017.

K. Avrachenkov

- – is responsible for the supervision and validation of the project-teams' yearly activity reports since 2010;
- – is a member of NICE, the Invited Researchers Committee of Inria Sophia Antipolis Méditerranée, since 2010.
- – is a member of scientific and pedagogical committee for the graduate school DS4H of UCA.

A. Jean-Marie

- – is the scientific coordinator of Inria activities in Montpellier (since 2008); as part of this duty, he represents Inria at: the Scientific Council of the Doctoral School "Sciences and Agrosciences" of the Univ of Avignon; at the Regional Conference of Research Organisms (CODOR);
- – is member of the managing sub-committee of the Project-Team Committee of the Inria Sophia Antipolis – Méditerranée research center since December 2017;

– is Head of project-team NEO since January 2017.

G. Neglia

– is the scientific delegate for European partnerships for Inria Sophia Antipolis – Méditerranée since 2014;

– is member of the Inria COST GTRI (International Relations Working Group of Inria's Scientific and Technological Orientation Council since 2016.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Note: UNS is the Univ Nice Sophia-Antipolis, UCA is the Univ Côte d'Azur.

Licence : M. Dreveton, "Tools for biology – Statistics", 24H, L1 Life Sciences, UNS, France;

Master : S. Alouf, "Performance Evaluation of Networks", 27H, M2 Ubinet, UCA, France;

Master : K. Avrachenkov, "Statistical Analysis of Graphs", 6H, M2 Data Science, UCA, France;

Master : M. Dreveton, "Statistical Analysis of Graphs", 26H, M2 Data Science, UCA, France;

Master : G. Neglia, "Distributed Optimization and Games", 31.5H, M2 Ubinet, UNS, France;

Master : G. Neglia, "Performance Evaluation of Networks", 4.5H, M2 Ubinet, UCA, France;

Master : G. Neglia, responsible for the "Winter School on Hands-on Machine Learning", 22.5H, M1 Computer Science, UNS, France.

Doctorat: A. Jean-Marie, "Queueing Systems", 6H, Summer School ResCom 2019, Anglet, France.

10.2.2. Supervision

PhD: Zaid Allybokus, "Scalable Online Algorithms for SDN Controllers", UCA, 11 June 2019, advisors: Konstantin Avrachenkov, Jeremie Leguay and Lorenzo Maggi (Huawei).

PhD: Dimitra Politaki, "Greening data center", UCA, 16 July 2019, advisors: Sara Alouf and Fabien Hermenier (Nutanix).

PhD in progress: Mandar Datar, "Singular perturbation approach for machine learning in multiobjective optimisation", Univ Avignon, 1 May 2018, advisor: Eitan Altman.

PhD in progress: Maximilien Dreveton, "Statistical Physics Methods for Distributed Machine Learning", UCA, 1 Oct. 2018, advisor: Konstantin Avrachenkov.

PhD in progress: Guilherme Iecker Ricardo, "Caching for wireless networks", UCA, 1 Sept. 2018, advisors: Giovanni Neglia and Pietro Elia (EURECOM).

PhD in progress: Mikhail Kamalov, "Semi-supervised variational autoencoders versatile data", UCA, 1 June 2019, advisor: Konstantin Avrachenkov.

PhD in progress: Marie Masson, "Fonctionnalités auto-organisantes dans le réseau d'accès radio 5G virtuels", UCA, 1 Dec. 2017, advisors: Eitan Altman and Zwi Altman (Orange).

PhD in progress: Tareq Si Salem, "Federated Learning", UCA, 1 October 2019, advisor: Giovanni Neglia.

PhD interrupted: Abhishek Bose, "Adaptive crawling with machine learning techniques", 1 June 2018 – 30 Sep. 2029.

10.2.3. Juries

NEO members participated in the Ph.D. committees of (in alphabetical order):

- Zaid Allybokus, "Scalable Online Algorithms for SDN Controllers", UCA, 11 June (K. Avrachenkov as advisor);

- Lea Bayati, "Data Centers Energy Optimization", Univ Paris-Est Créteil, 20 September (A. Jean-Marie as reviewer);

- Céline Comte, "Resource management in computer clusters: algorithm design and performance analysis", Telecom ParisTech, 24 September (A. Jean-Marie as jury president);

- Muhammad Jawad Khokhar, "Modeling Quality of Experience of Internet Video Streaming by Controlled Experimentation and Machine Learning", UCA, 15 October (G. Neglia as jury member)

- Xiaoyi Mai, "Methods of random matrices for large dimensional statistical learning", CentraleSupelec, 16 October (K. Avrachenkov as jury member);

- Antonio Massaro, "Optimisation, games and learning strategies in telecommunication systems subject to structural constraints", University of Trento, 7 May (K. Avrachenkov as reviewer);

- Dimitra Politaki, "Greening data center", UCA, 16 July (S. Alouf as advisor);

- Yonathan Portilla, Univ Avignon, "Study of Social Networks: modelling and analysis", 20 May (E. Altman as co-advisor);

- Arthur Vallet, "Modélisation markovienne de lasers multimodes à semiconducteurs", Université de Montpellier, 15 October (A. Jean-Marie as jury member).

10.3. Popularization

10.3.1. Interventions

- Sara Alouf presented the Researcher profession at the *Forum des Métiers*, Collège Emile Roux, Le Cannet, on 15 March 2019, to a total of 62 students in 6 groups, aging 12-14 years.

<h1 style="text-align:center; color:red;">POLARIS Project-Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- P. Mertikopoulos was a technical program co-chair of the 10th International Conference on NETwork Games, COntrol and OPtimisation (NetGCoop 2020).
- B. Pradelski was a technical program co-chair of the 14th Workshop on the Economics of Networks, Systems and Computation (NetEcon), colocated with ACM SIGMETRICS and EC.

10.1.1.2. Member of the Organizing Committees

- B.Gaujal organized a special day on Potential games at Gamenets (Paris)
- P. Mertikopoulos co-organized the workshop "20PoA: Twenty years of the Price of Anarchy" (Chania, Greece, July 2019).

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- B. Gaujal: WiOpt, NeuIPS
- J. Anselmi: Valuetools, ASMTA
- P. Mertikopoulos: The 2020 French Days on Optimization and Decision Science (SMAI MODE 2020)
- A. Legrand: ISC HIGH PERFORMANCE
- N. Gast: SIGMETRICS, NeurIPS, ValueTools
- J-M. Vincent: Epew, Valuetools, Simultech
- P. Loiseau: NeurIPS, ICML, SIGMETRICS, PETS, NetEcon
- P. Mertikopoulos: ICML, NeurIPS (area chair).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- P. Mertikopoulos serves as an associate editor for JDG (Journal of Dynamics and Games) and MCAP (Methodology and Computing in Applied Probability).
- N. Gast serves as an associate editor for Performance Evaluation and Stochastic Models.
- P. Loiseau is an associate editor for ACM Transactions on Internet Technology and IEEE Transactions on Big Data.

10.1.3.2. Reviewer - Reviewing Activities

All members of the team are active reviewers for several international journals and conferences.

10.1.4. Invited Talks

- B. Gaujal:
    - 23/01: ENS Lyon seminars (Le Pleynet) "Evolutionary games and bounded rationality"
    - 7/02: Eva Tardos seminar (Grenoble): "price of anarchy in routing games"
    - 3/05: Workshop for Eitan Altman's 60th Birthday (Avignon) "Sturmian words at work in optimal routing"
- P. Mertikopoulos:
    - Invited instructor at the CONNECT Summer School on Machine Learning for Communications "Online learning and optimization for wireless systems", Trinity College, Dublin
    - Invited talk at ICCOPT 2019 (2019 International Conference on Continuous Optimization), Berlin, August 2019
    - Invited talk at NPCG 2019 (Workshop on Network, Population and Congestion Games), Paris, April 2019
    - Invited talk at GDO 2019 (Workshop on Games, Dynamics and Optimization), Cluj-Napoca, April 2019
    - Invited talk at OSL 2019 (Workshop on Optimization and Statistical Learning), Les Houches, March 2019
    - Invited talk at EPFL Machine Learning Seminar, March 2019
    - Invited talk at the Criteo AI Lab, February 2019
- A. Legrand:
    - Simulation of HPC applications and predictions, Scheduling workshop, Bordeaux (27/6/19)
    - Series of talks about reproducible research: TILECS workshop, Grenoble (3/7/19); UFRGS keynote, Porto Alegre (9/10/19); SBAC-PAD conference, Campo Grande (17/10/19); Formidex, UGA (6/11/19); Doctoral school, Neuchatel (7/11/19); Inria Alumni, Paris (12/11/19)
- Nicolas Gast was invited to give a tutorial about "Mean field and refined mean field approximation" at the conference ITC.

10.1.5. Research Administration

- B. Gaujal is a member of the scientific committee of GDR-IM and a member of the council of 'pole MSTIC' Grenoble
- P. Mertikopoulos is a member of the steering committee (comité de liaison) of the optimization and decision theory group of the French Society for Industrial and Applied Mathematics (SMAI)
- P. Mertikopoulos is the working group coordinator, core group member and management committee (MC) representative for France in the European Network for Game Theory (GAMENET).
- P. Loiseau is the chair of the steering committee of NetEcon.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

We only list the master level teaching.

- B. Gaujal was involved in multiple courses:
    - M2 course in ENS Lyon with Panayotis Mertikopoulos : Online Optimization
    - M2 course in MPRI (Paris) with Ana Busic: performance evaluation in communication networks

- – M2 course (Ensimag) on network performance models
- – M1 exercice session (Ensimag) applied probability
- P. Mertikopoulos gave an invited PhD level course at EPFL on "Min-max optimization and variational inequalities".
- V. Danjean was involved in INFO3 and INFO4 at Polytech Grenoble (System Architecture, Internship supervising, ...) and in M1 Info (Operationg systems and Parallel Programming course, Operating System project)
- A. Legrand was involved in multiple courses:
  - – Scientific Methodology and Performance Evaluation (M2 MOSIG, UGA)
  - – Scientific Methodology and Performance Evaluation (M2 Univ. Federale do Rio Grande do Sul, Porto Alegre)
  - – Parallel Systems (M2 MOSIG, UGA)
  - – Probability and Simulation (M1, Polytech/UGA)
  - – Performance Evaluation (M1, Polytech/UGA)
  - – Reproducible Research (Doctoral School MSTII, UGA)
- J. Anselmi taught in the course Probability and Simulation (M1, Polytech/UGA).
- P. Loiseau taught in the courses Probability and Simulation (M1, Polytech/UGA) and "Algorithms for data processing" (M1 INFO, UGA).
- N. Gast is responsible of the master course "Optimization under Uncertainties" (Master 2 ORCO in Grenoble).
- J.-M. Vincent teaches Probability for Informatics and Performance Evaluation at Ensimag, and Mathematics for Computer Science (1st year) and Scientific Methodology and Performance Evaluation (2nd year) at the Master of Computer Science.
- G. Huard taught the course Object Oriented Design class for the M1 INFO, UGA.

10.2.2. Supervision

Supervision of PhD students and postdocs:
- B. Jonglez (Bruno Gaujal and Martin Heusse)
- S. Plassart (Bruno Gaujal and Alain Girault)
- K. Khun (Bruno Gaujal and Nicolas Gast)
- C. Yan (Bruno Gaujal and Nicolas Gast)
- K. Antonakopoulos (P. Mertikopoulos and E. V. Belmega, ETIS/ENSEA)
- B. Roussillon (P. Mertikopoulos and P. Loiseau)
- B. Donassolo (P. Mertikopoulos and A. Legrand):
- P. Rocha Bruel (A. Legrand and Alfredo Goldman)
- T. Cornebize (A. Legrand)
- C. Heinrich (A. Legrand)
- S. Zrigui (A. Legrand and D. Trystram)
- A. Janon (G. Huard and A. Legrand)
- V. Emelianov (N. Gast and P. Loiseau)
- T. Barzolla (N. Gast with Vincent Jost and Van-Dat Cung from G-SCOP laboratory)
- M. Mendil (N. Gast)
- T. Kennouche (N. Gast)
- U. Ozeer (J-M. Vincent)
- Dong Quan Vu (P. Loiseau)
- Vera Sosnovik (O. Goga and P. Loiseau)
- Eleni Gkiouzepi (P. Loiseau)
- Lucas Leandro Nesi (A. Legrand and Lucas Mello Schnorr)
- Dimitrios Moustakas (B. Pradelski and P. Loiseau, with H. Nax from UZH)
- Simon Jantscheg (B. Pradelski and P. Loiseau, with H. Nax from UZH)

Supervision of M2 Students:

- Manal Benaissa (V. Danjean)
- Leo Gayral (Bruno Gaujal and Federica Garin)
- Kimang Khun (Bruno Gaujal and Nicolas Gast)
- Nicolas Rocher (Patrick Loiseau and Panayotis Mertikopoulos)
- Chen Yan (Nicolas Gast)
- Dimitrios Moustakas (B. Pradelski)

10.2.3. Juries

- B. Gaujal was a reviewer of the PhD Thesis of Paulin Jacquot (Ecole Polytechnique).
- V. Danjean was involved in several teaching jurys: INFO3 at Polytech Grenoble, L3 M&I, M1 Info, DU ISN and DIU EIL at UGA.
- A. Legrand was a reviewer of the PhD Thesis of Mohamad El Sayah (Univ. Franche Comté, Besançon)
- N. Gast was member of the PhD Jury of Celine Comte and Eyal Castiel.

10.3. Popularization

Patrick Loiseau wrote with Oana Goga an article "Publicité en Ligne : reprenons la main !", that was co-published co-published by the blog Binaire (Le Monde) and The Conversation France, June 3, 2019.

10.3.1. Internal or external Inria responsibilities

- B. Gaujal is a member of the CR2 hiring committee in Grenoble.
- J.-M. Vincent is in charge of the relation Rectorat / Inria-Grenoble for the organization of scientific events (Festival of Science, Schools Visits, organization of Conference Cycles on research in CS and Applied Mathematics for teachers in Colleges)
- J.-M. Vincent is
  - Member of the national coordination of the Diplôme Inter-Universitaire "Enseigner l'Informatique au Lycée" (50 universities involved).
  - Local Head of DIU EIL ine Academy of Grenoble
  - Member of the organization of the teaching sessions for all the teachers in CS coming from abroad
  - Member of the national Commission Inter-Irem in Informatics
  - Member of the first national jury for the competitive recruitment of teachers in computer science (Capes NSI 2019-20)

10.3.2. Articles and contents

Arnaud Legrand participated in the writing of a book [39] on Reproducible Research, which aims at helping students and engineers and researchers to find efficient and accessible ways leading them to improve their reproducible research practices.

10.3.3. Education

- V. Danjean is the head of the DU ISN formation (Diplôme Universitaire Informatique et Sciences du Numérique)
- V. Danjean co-organized the new DIU EIL formation (Diplôme Inter-Universitaire Enseigner l'Informatique au Lycée). He is involved both at the national level (for the coordination and the definition of the content of this formation provided in more than 30 universities in France), and at the local level (coordination of the local teams, courses scheduling, conference organization, ...)

10.3.4. Interventions

- V. Danjean participated in "La Fête de la Science", animating several sessions of "unplugged computer science"
- P. Loiseau co-rganized and animated a workshop "IA, éthique et société", Forum Ecobiz Grenoble, October 2019.
- P. Loiseau participated in a debate "Ethique et numérique : quels enjeux sociétaux ?". Festival Transfo, Grenoble, France, January 2019.

<p style="text-align:center; color:red;">**RESIST Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Olivier Festor: IEEE Conference on Network Softwarization (NetSoft 2019), general co-chair.

Isabelle Chrisment: IEEE/IFIP International Workshop on Analytics for Network and Service Management (AnNet 2020), general co-chair.

10.1.1.2. Member of the Organizing Committees

Laurent Andrey: IEEE Conference on Network Softwarization (NetSoft 2019), web chair.

Rémi Badonnel: IEEE International Symposium on Integrated Network Management (IM 2019); IFIP International Conference on Networking (Networking 2020); IEEE/IFIP Network Operations and Management Symposium (NOMS 2020).

Olivier Festor: IEEE International Symposium on Integrated Network Management (IM 2019), member of the steering committee & Publications co-chair; IEEE/IFIP Network Operations and Management Symposium (NOMS 2020), tutorial co-chair; IFIP International Conference on Networking (Networking 2020), patrons co-chair.

Thibault Cholez: IEEE/IFIP Workshop on Security for Emerging Distributed Network Technologies (DISSECT 2020).

Isabelle Chrisment: Rendez-vous de la Recherche et de l'Enseignement de la Sécurité des Systèmes d'Information (RESSI 2019), member of the steering committee.

Jérôme François: Rendez-vous de la Recherche et de l'Enseignement de la Sécurité des Systèmes d'Information (RESSI 2019), member of the steering committee; IEEE International Conference on Blockchain and Cryptocurrency (ICBC 2019), demonstration co-chair.

Abdelkader Lahmadi : IEEE International Symposium on Integrated Network Management (IM 2019), co-chair of the workshop HotNSM; IEEE/IFIP Network Operations and Management Symposium (NOMS 2020), publicity co-chair.

Lucas Nussbaum: TILECS workshop.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

Rémi Badonnel: IEEE/IFIP/In Coop. with ACM SIGCOMM International Conference on Network and Service Management (CNSM 2019), technical program committee co-chair; IEEE International Symposium on Integrated Network Management (IM 2019), experience program committee co-chair; IEEE/IFIP Network Operations and Management Symposium (NOMS 2020), experience program committee co-chair.

Olivier Festor: IEEE International Symposium on Integrated Network Management (IM 2019), Tutorial chair; IEEE Conference on Network Softwarization (NetSoft 2019), Technical Program Committee co-chair; IEEE/IFIP/In Coop. with ACM SIGCOMM International Conference on Network and Service Management (CNSM 2019).

Isabelle Chrisment: IFIP, in-cooperation with ACM SIGCOMM Network Traffic Measurement and Analysis Conference (TMA 2019).

Jérôme François: IEEE International Symposium on Integrated Network Management (IM 2019); IEEE/IFIP Workshop on Security for Emerging Distributed Network Technologies (DISSECT 2019); IEEE Workshop on Emerging Trends in Softwarized Networks (ETSN 2019).

10.1.2.2. Member of the Conference Program Committees

Laurent Andrey: IEEE Conference on Network Softwarization (NetSoft 2019).

Rémi Badonnel: IEEE/IFIP/In Coop. with ACM SIGCOMM International Conference on Network and Service Management (CNSM 2019); IEEE International Symposium on Integrated Network Management (IM 2019); IEEE Conference on Network Softwarization (NetSoft 2019); IEEE/IFIP International Workshop on Analytics for Network and Service Management (AnNet 2019); IEEE Global Information Infrastructure and Networking Symposium (GIIS 2019); IEEE International Conference on Communications (ICC 2020); IEEE/IFIP Network Operations and Management Symposium (NOMS 2020).

Isabelle Chrisment: IEEE/IFIP/In Coop. with ACM SIGCOMM International Conference on Network and Service Management (CNSM 2019); IEEE International Symposium on Integrated Network Management (IM 2019); IEEE/IFIP International Workshop on Analytics for Network and Service Management (AnNet 2019); Rencontres Francophones sur la Conception de Protocoles, l'Évaluation de Performance et l'Expérimentation des Réseaux de Communication (CoRes 2019); IEEE/IFIP Network Operations and Management Symposium (NOMS 2020); ACM/IEEE International Conference on Internet of Things Design and Implementation (IoTDI 2020);

Thibault Cholez: IEEE International Conference on Blockchain and Cryptocurrency (ICBC 2019); IEEE International Conference on Cloud Networking (CloudNet 2019); IEEE International Symposium on Integrated Network Management (IM 2019); IEEE/IFIP Workshop on Security for Emerging Distributed Network Technologies (DISSECT 2019); IEEE/IFIP International Workshop on Managing and Managed by Blockchain (Man2block 2019); IEEE/IFIP Network Operations and Management Symposium (NOMS 2020).

Olivier Festor: IEEE/IFIP/In Coop. with ACM SIGCOMM International Conference on Network and Service Management (CNSM 2019); IEEE International Symposium on Integrated Network Management (IM 2019); IEEE Conference on Network Softwarization (NetSoft 2019); IEEE/IFIP Network Operations and Management Symposium (NOMS 2020); IEEE/IFIP/In Coop. with ACM SIGCOMM International Conference on Network and Service Management (CNSM 2020); IEEE Conference on Network Softwarization (NetSoft 2020); IFIP International Conference on Networking (Networking 2020).

Jérôme François: IFIP, in-cooperation with ACM SIGCOMM Network Traffic Measurement and Analysis Conference (TMA 2019); IEEE INFOCOM Workshop on Cryptocurrencies and Blockchains for Distributed Systems (CryBlock 2019); Conference on Blockchain Research & Applications for Innovative Networks and Services (BRAINS 2019); IEEE/IFIP International Workshop on Managing and Managed by Blockchain (Man2block 2019).

Abdelkader Lahmadi: IEEE INFOCOM Workshop on Cryptocurrencies and Blockchains for Distributed Systems (CryBlock 2019); IEEE/IFIP International Workshop on Managing and Managed by Blockchain (Man2block 2019); IEEE/IFIP Network Operations and Management Symposium (NOMS 2020); IEEE International Symposium on Integrated Network Management (IM 2019); IEEE Conference on Network Softwarization (NetSoft 2019); Cyber Security in Networking Conference (CSNet 2019); IEEE Workshop on Emerging Trends in Softwarized Networks (ETSN 2019).

Lucas Nussbaum: International Conference on Enabling Technologies: Infrastructure for Collaborative Entreprises (WETICE 2019); 39th IEEE International Conference on Distributed Computing System (ICDCS 2019); 16th International Conference on Mining Software Repositories (MSR 2019 – FOSS award); 11th IEEE International Conference on Cloud Computing Technology and Science (CloudCom 2019). 5th International Workshop on Serverless Computing (WoSC 2019); 54th IEEE International Conference on Communications (ICC) – NGNI Symposium; IEEE Global Information Infrastructure and Networking Symposium (GIIS 2019).

10.1.2.3. Reviewer

The permanent team members made many reviews for the conferences the team is involved in.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Rémi Badonnel: Associate Editor for the Wiley International Journal of Network Management (IJNM), Associate Editor for the Springer Journal of Network and System Management (JNSM)and guest editor for the IEEE Transactions on Network and Service Management (TNSM).

Isabelle Chrisment: Associate Editor for the IEEE Transactions on Network and Service Management (TNSM).

Abdelkader Lahmadi : Associate Editor for the Wiley International Journal of Network Management (IJNM)and Guest Editor for a special issue of Springer Journal of Network and System Management (JNSM).

Jérôme François: Associate Editor-In-Chief for the Wiley International Journal of Network Management (IJNM).

10.1.3.2. Reviewer - Reviewing Activities

Rémi Badonnel: IEEE Transactions on Network and Service Management (TNSM), IEEE Journal on Selected Areas in Communications (JSAC), Springer Journal of Network and System Management (JNSM), IEEE Communications Magazine (COMMAG), Wiley International Journal of Network Management (IJNM) and Elsevier Journal of Industrial Information Integration (JIII).

Thibault Cholez: IEEE Transactions on Network and Service Management (TNSM), IEEE Communications Magazine (COMMAG), Elsevier Journal on Communication Networks (COMNET)and SIGCOMM Computer Communication Review.

Isabelle Chrisment: IEEE Transactions on Network and Service Management (TNSM).

Laurent Andrey: Springer Journal of Network and System Management (JNSM) and Wiley International Journal of Network Management (IJNM).

Jérôme François: IEEE Transactions on Network and Service Management (TNSM), IEEE Journal on Selected Areas in Communications (JSAC) and Wiley International Journal of Network Management (IJNM).

Abdelkader Lahmadi : IEEE Transactions on Network and Service Management (TNSM), IEEE Journal on Selected Areas in Communications (JSAC), Wiley International Journal of Network Management (IJNM), Springer Journal of Network and System Management (JNSM), IEEE Communications Magazine (COM-MAG) and Elsevier Journal Computer Communications (COMCOM).

Lucas Nussbaum: International Journal of Grid and Utility Computing (IJGUC).

10.1.4. Invited Talks

Abdelkader Lahmadi provided a keynote on "Toward Self-driving Networks: Network Management and Security Challenges" in the IEEE/IFIP Workshop on Security for Emerging Distributed Network Technologies (DISSECT), 8 April, 2019, Washington D.C., USA.

Isabelle Chrisment provided a talk on "Experimentation in Cybersecurity: from Requirements to Platforms" in the TILECS (Towards an Infrastructure for Large-Scale Experimental Computer Science) workshop, 3-4 July 2019, Grenoble, France.

Olivier Festor gave a keynote on the coupling of Information Centric Networks and Programmable Networks at the Orange Network of the Future workshop in may 2019. He also gave a talk at the Distinguished Experts Panel of IEEE/IFIP IM'2019 in Washington on Intelligent Management and gave a short invited presentation entitled "Opening the Network for More Secure Services" at the SecSoft 2019 workshop in Paris on June 24th, 2019.

10.1.5. Leadership within the Scientific Community

Rémi Badonnel has been elected as the chair of the IFIP (International Federation for Information Processing) WG6.6 (Working Group 6.6) dedicated to the management of networks and distributed systems.

Isabelle Chrisment has been a co-chair of the Allistene cybersecurity working group, whose main goal is to help drive the French cybersecurity research and innovation.

Olivier Festor is a member of the IEEE/IFIP NISC (NOMS IM Stering Committee) which manages the set of conferences in the area of network and service management for both IEE and IFIP scientific communities worldwide.

Jérôme François has been appointed as co-chair of NMRG (Network Management Research Group) of IRTF (Internet Research Task Force).

10.1.6. Scientific Expertise

Isabelle Chrisment served as an expert of the HCERES (High Council for Evaluation of Research and Higher Education) committee for the LISTIC Laboratory. She was a member of the GDR RSD/ASF selection committee for the thesis award. She is also a member of the AFNIC's Scientific Council.

Abdelkader Lahmadi served as reviewer for ANRT (CIFRE PhD). Abdelkader Lahmadi has contributed to the writing of a document about the protection of critical infrastructures in transport and energy within the working group "enjeux 2025" of CoFIS (Comité de la Filière industrielle de sécurité).

Olivier Festor is a member of the Scientific Council of Orange and Director of TELECOM Nancy, the graduate Engineering School of Computer Science at the University of Lorraine. He is also contributing to the HCERES national scientific evaluation board.

Jérôme François and Rémi Badonnel serve as reviewers for ANRT (CIFRE PhD). Jérôme François is in the advisory board of the Interreg TERMINAL project (2019-2021).

10.1.7. Research Administration

Thibault Cholez is a member of the executive council of the Digitrust project (I-Site project of the Université de Lorraine to foster research on trust and security in IT).

Isabelle Chrisment is also an elected member of the scientific pole AM2I (Automatique, Mathématiques, Informatique et leurs Interaction) at Université de Lorraine. She is a member of the COMIPERS at Inria Nancy Grand Est. She is also involved in the CMI (Commission de la Mention Informatique) board, which is a part of the doctoral school IAEM.

Abdelkader Lahmadi is a member of the CDT of Inria Nancy Grand Est.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Olivier Festor is the Director of the TELECOM Nancy Engineering School.

Rémi Badonnel is heading the Internet Systems and Security specialization of the 2nd and 3rd years at the TELECOM Nancy engineering school, and is coordinating the Security Pathway Program at the same school, elaborated in the context of the International Master of Science in Security of Computer Systems built with the Mines Nancy school.

Thibault Cholez is in charge of the organization of professional projects for the three years of TELECOM Nancy students in apprenticeship.

Team members are teaching the following courses:

Rémi Badonnel 242 hours - L3, M1, M2 - Networks, Systems and Services, Software Design and Programming, Cloud Computing, Network and Security Management - TELECOM Nancy, Université de Lorraine

Thibault Cholez 290 hours - L3, M1, M2 - Computer Networks, Object-Oriented Programming, Network Services, Constraint development on small Connected Objects, Mobile applications and Internet of Things, IT tools for Project Management - TELECOM Nancy, Université de Lorraine

Isabelle Chrisment 220 hours -L3, M1, M2 -C and Shell Programming, Computer Networking, Operating Systems, Network Security. - TELECOM Nancy, Université de Lorraine

Jérôme François 70 hours - M1, M2 -Network security, Big Data - TELECOM Nancy, Université de Lorraine

Abdelkader Lahmadi 280 hours - L3, M1, M2 - Real time and Embedded Systems Programming, Distributed Systems and Algorithms, Green IT, Algorithms and Advanced Programming, Security of Cyber Physical Systems - ENSEM Engineering School, Université de Lorraine

Lucas Nussbaum 200 hours - L2, Licence Pro (L3), M1 - several courses about systems administration, monitoring, virtualization, configuration management, networking, operating systems. - IUT Nancy-Charlemagne

E-learning

MOOC *Supervision de Réseaux et Services (Session 2)*, FUN Project, Université de Lorraine, Ingénieur, formation initiale et continue, Thibault Cholez, Rémi Badonnel, Laurent Andrey, Olivier Festor, Abdelkader Lahmadi, Jérôme François, January-March 2019, over 6000 from 77 countries, and 347 certificates of achievement. Each MOOC Resist participant contributed to the 2019 maintenance for a third opening on January 2020.

10.2.2. Supervision

PhD in progress: Ahmad Abboud, *Compressed and verifiable filtering rules in Software-defined Networking*, since September 2018, supervised by Michael Rusinowitch, Abdelkader Lahmadi, and Adel Bouhoula.

PhD in progress: Pierre-Olivier Brissaud, *Encrypted traffic analysis*, since July 2016, supervised by Isabelle Chrisment, Jérôme François and Thibault Cholez.

PhD in progress: Jean-Philippe Eisenbarth, *Securing the future blockchain-based security services*, since May 2019, supervised by Thibault Cholez and Olivier Perrin (Coast team).

PhD in progress: David Espinel, *SDN solution for Massively Distributed Cloud Infrastructure*, since February 2018, supervised by Lucas Nussbaum, Adrien Lebre and Abdelhadi Chari.

PhD in progress: Adrien Hemmer, *Predictive Security Monitoring for Large-Scale Internet-of-Things*, since October 2018, supervised by Isabelle Chrisment and Rémi Badonnel.

PhD in progress: Pierre-Marie Junges, *Internet-wide automated assessment of the exposure of the IoT devices to security risks*, since October 2018 supervised by Olivier Festor and Jérôme François.

PhD in progress: Mingxiao Ma, *Cyber-Physical Systems defense through smart network configuration*, since Novemeber 2017, supervised by Isabelle Chrisment, Abdelkader Lahmadi.

PhD in progress: Abdulqawi Saif, *Open Science for the scalability of a new generation search technology*, since December 2015, supervised by Ye-Qiong Song & Lucas Nussbaum.

PhD in progress: Matthews Jose, *Programming model for new flow-based network monitoring*, since January 2019, supervised by Olivier Festor & Jérôme François.

PhD in progress: Data-Driven Intelligent Monitoring for Software-Defined Networks, *Programming model for new flow-based network monitoring*, since October 2018, supervised by Isabelle Chrisment, Raouf Boutaba & Jérôme François.

PhD in progress: Abir Laraba, *Data-Driven Intelligent Monitoring for Software-Defined Networks*, since October 2018, supervised by Isabelle Chrisment, Raouf Boutaba & Jérôme François.

PhD in progress: Mehdi Zakroum, *Forecasting cyberthreats from exogeneous data*, since October 2019, supervised by Isabelle Chrisment & Jérôme François.

PhD: Paul Chaignon, *Software Datapaths for Multi-Tenant Packet Processing*, supervised by Olivier Festor, Jérôme François and Kahina Lazri [1].

PhD: Xavier Marchal, Secure operation of virtualized Named Data Networks, supervised by Olivier Festor & Thibault Cholez [2].

PhD: Nicolas Schnepf, *Orchestration and Verification of Security Functions for Smart Environments*, supervised by Stephan Merz, Rémi Badonnel and Abdelkader Lahmadi [3].

PhD: Lakhdar Meftah, *Towards Privacy-sensitive Mobile Crowdsourcing*, supervised by Romain Rouvoy (University of Lille) and Isabelle Chrisment.

10.2.3. Juries

Team members participated to the following Ph.D. defense committees:

- Damien Crémilleux, PhD in Computer Science from CentraleSupélec, Rennes, France. Title: Visualization for information system security monitoring, February 2019 – (Isabelle Chrisment as president).

- Philippe Pittoli, PhD in Computer Science from the University of Strasbourg, France.Title: Influence d'une architecture de type maître-esclave dans les problématiques de l'Internet des Objets. May 2019 – (Isabelle Chrisment as reviewer).

- Kallol Krishna Karmakar, PhD in Computer Science from the University of Newcastle, Australia. Title: Techniques for Securing Software Defined Networks and Services, June 2019 – (Isabelle Chrisment as reviewer).

- Pierre-Marie Bajan, Phd in Computer Science from Télécom SudParis, France. Title: Simulation d'attaque et d'activité : application à la cyber-défense, July 2019 – (Isabelle Chrisment as examiner).

- Muhammad Jawad Khokhar, PhD in Computer Science from the University of Nice-Sophia Antipolis, France. Title: Modeling Quality of Experience of Internet Video Streaming by Controlled Experimentation and Machine Learning, October 2019 - (Isabelle Chrisment as examiner).

- François Boutigny, Phd in Computer Science from Télécom SudParis, France. Title: Multidomain Virtual Network Embedding under Security-oriented Requirements applied to 5G Networks Slices, November 2019 – (Isabelle Chrisment as examiner).

- Fetia Bannour, PhD in Computer Science and Electrical Engineering from the Paris-Est Créteil University, France. Title: Contributions pour le contrôle distribué dans les réseaux SDN, November 2019 - (Olivier Festor as reviewer).

- Danilo Cerovic, PhD in Computer Science from Sorbonne Université, Paris, France. Title: Architecture réseau résiliente et hautement performante pour les datacenters virtualisés, February 2019 - (Olivier Festor as reviewer).

Team members participated to the following Habilitation Degree committees:

- Nozar Kheir, Habilitation Degree in Computer Science from Université Paris-Saclay, France. Title : From Cyber-secure to Cyber-resilient Computer Systems - The way forward, May 2019 - (Olivier Festor as reviewer).

10.3. Popularization

10.3.1. Articles and contents

Abdelkader Lahmadi and Frédéric Beck provided a podcast about the security of connected devices available at Interstices (https://interstices.info/des-outils-pour-evaluer-la-securite-des-objets-connectes/)

Thibault Cholez gave an interview for the *factuel* (newsletter of the University of Lorraine) to present the H2020 project CONCORDIA (https://factuel.univ-lorraine.fr/node/11394). He also wrote a blog entry entitled "Assessing blockchains' network infrastructure: why it matters for cybersecurity" for the CONCOR-DIA website (https://www.concordia-h2020.eu/blog-post/assessing-blockchains-network-infrastructure-why-it-matters-for-cybersecurity/).

Isabelle Chrisment contributed to the ARCEP Report entitled "The State of the Internet in France", June 2019, page 19, https://www.arcep.fr/uploads/tx_gspublication/rapport-etat-internet-2019-270619.pdf (French version) or https://en.arcep.fr/uploads/tx_gspublication/report-state-internet-2019-eng-270619.pdf (English version).

Jérôme François has been interviewed by France 3 Lorraine to present how cyberthreat can be predicted in the context of ThreatPredict (section 9.4.3.1). He also gave an introduction to network security in the context of FAN (https://fan.inria.fr/)

10.3.2. Education

Isabelle Chrisment participated in the SNT (Sciences Numériques et Technologie) MOOC, more especially in the design of a video entitled "Internet IP, a universal protocol?" in the module "Internet and Networks. The SNT MOOC is a FUN Project dedicated to the teachers in high schools to help them within the context of the high school reform.

10.3.3. Internal action

Jérôme François presented ThreatPredict (section 9.4.3.1) at the "Café des Sciences" in Inria Rocquencourt Center.

RMOD Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- Marcus Denker and Stéphane Ducasse are in the board of ESUG and organized ESUG 2019, the yearly Smalltalk conference that brings together research and industry http://www.esug.org/

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Anne Etien has been PC chair of IWST since 2015.
- Anne Etien has been PC chair of Sattose 2019.
- Santiago Bragagonolo: IWBOSE 2020 CFP Manager, Chair (workshop on blockchain software engineering).
- Stéphane Ducasse: PC-chair International Conference on Software Reuse 2020.

10.1.2.2. Member of the Conference Program Committees

- Marcus Denker has been a member of ICOOLPS 2019.
- Steven Costiou has been member of IWST 2019.
- Anne Etien has been member of BENEVOL 2019, IWor 2019, VISSOFT 2019, ICPC 2019, CIEL 2019, GDRGPL 2019, Modelwards Program Committees.
- Guillermo Polito has been PC of IWST 2019
- Guillermo Polito has been PC of Meta Workshop 2019.
- Vincent Aranega was in the PC of IWST 2019.

10.1.2.3. Reviewing Activities

- Vincent Aranega reviewed for MODELSWARD19.
- Damien Pollet reviewed for ICSOFT.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Anne Etien has been a member of the editorial board for the Special issue on Dynamic Languages of *Science of Computer Programming* journal.
- Anne Etien has been editor for *CEUR* journal vol 2510.

10.1.3.2. Reviewing Activities

- Anne Etien was reviewer for *Journal of Systems and Software*.
- Steven Costiou was reviewer for *Science of Computer Programming*.
- Guillermo Polito was reviewer for *Journal IEEE Transactions on Industrial Informatics*.
- Damien Pollet was reviewer for *Science of Computer Programming*.
- Gordana Rakic was reviewer for the 3rd call for *The Programming Journal* (and Programming 2020 conference).
- Gordana Rakic was reviewer for the *Computing and Informatics* journal.

10.1.4. Invited Talks

Steven Costiou: Keynote ICCR2019 6th International Conference on Cloud and Robotics (Remote and live debugging of IOT applications: tools for researchers and developers.)

10.1.5. Scientific Expertise

- Anne Etien: expert for the French government on Research Tax Credit.
- Anne Etien: expert for the ANRT to evaluate a CIFRE file.
- Steven Costiou: program committee of the GDR-GPL 2020 challenges.

10.1.6. Research Administration

- Steven Costiou: representative of the post-doc researchers of the CRIStAL lab for the 2019 HCERES evaluation.
- Anne Etien is animator of the Software Engineering thematic Group of the CRIStAL lab since 2019.
- Anne Etien is elected at the committee of Inria Lille - Nord Europe center since 2016.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Marcus Denker, 2 hours, Advanced Reflection. MetaLinks, VUB Brussels, Belgium.

Master: Steven Costiou, Fondamentaux du debugging, 20h, M2, Université de Lille

Master: Steven Costiou, Fondamentaux du debugging, 12h eTD, M2, Université de Bretagne Occidentale

Master: Steven Costiou, Introduction au C, 10h, M1 + M2, Polytech-Lille

Master: Steven Costiou, IOT, 13h, M2, Polytech-Lille

Master: Steven Costiou, IOT, 8h, M2, Université de Picardie Jules Verne

Licence: Steven Costiou, Systèmes d'information, 36h, L3, Université de Bretagne Occidentale

Master: Christophe Demarey, Intégration continue, 16 EdTD, M2, Université de Lille, France

Master: Bragagnolo Santiago, Robotique avec ROS, 36h TD, M2, ISEN

Master: Bragagnolo Santiago, Introduction a la blockchain, 6h TD, M2, Université de Lille

Licence: Bragagnolo Santiago, Programmation par objet, 26.3h TD, Polytech-Lille, France

Licence: Anne Etien, Bases de données, 30h, L3, Polytech-Lille, France

Licence: Anne Etien, Programmation par objet, 40h, L3, Polytech-Lille, France

Licence: Anne Etien, Bases de données, 30h, M1, Polytech-Lille, France

Master: Anne Etien, Test et Maintenance, 10h, M1, Polytech-Lille, France

Master: Anne Etien, Test et Maintenance, 14h, M2, Polytech-Lille, France

Master: Anne Etien, Système d'information objet, 10h, M1, Polytech Lille, France

Master: Anne Etien, Bases de données Avancées, 17h, M1, Polytech-Lille, France

Licence: Vincent Aranega, Programmation Python, 42h, niveau (L1), Université de Lille, France

Master: Vincent Aranega, Génie Logiciel, 42h, niveau (M1), Université de Lille, France

Master: Vincent Aranega, Paradigme de Programmation par la Pratique, 40h, niveau (M1), Université de Lille, France

Master: Vincent Aranega, Paradigme de Programmation par la Pratique, 15h, niveau (M1), Université de Lille, France

Licence: Vincent Aranega, Programmation C, 42h, niveau (L2), Université de Lille, France

Licence: Vincent Aranega, Programmation avancée, 32h, niveau (L3), Polytech-Lille, France

Licence: Nicolas Anquetil, Principes des Système d'Exploitation, 30h, L2, IUT-A, Université de Lille, France

Licence: Nicolas Anquetil, Conception OO Avancée, 34h, L2, IUT-A, Université de Lille, France

Licence: Nicolas Anquetil, Modélisation Mathématique, 36h, L2, UT-A, Université de Lille, France

Licence: Nicolas Anquetil, Production d'Application, 30h, L2, IUT-A, Université de Lille, France

Licence: Nicolas Anquetil, Programation Mobile, 30h, L2, IUT-A, Université de Lille, France

Licence: Nicolas Anquetil, Projets Agiles, 12h, L2, IUT-A, Université de Lille, France

Licence: Nicolas Anquetil, Graphes & Languages, 64h, L2, IUT-A, Université de Lille, France

Licence: Nicolas Anquetil, Suivi de Stages, 15h, L2, IUT-A, Université de Lille, France

Licence: Nicolas Anquetil, Interfaces Hommes-Machines, 32h, L2, IUT-A, Université de Lille, France

Licence: Benoît Verhaeghe, Structure de données, 22 EdTD, L3, Polytech Lille, France

Licence: Benoît Verhaeghe, Système d'exploitation, 20 EdTD, L2, Université de Montpellier, France

Licence: Benoît Verhaeghe, Fondamentaux Architecture et Systèmes d'Exploitation, 15 EdTD, L3, Polytech Montpellier, France

Master: Benoît Verhaeghe, Architecture Logicielles, 25 EdTD, M1, Polytech Lille, France

Master: Benoît Verhaeghe, Évolution et restructuration, 9 EdTD, M2, Université de Montpellier, France

License: Damien Pollet, OpenDevs, 35h, L3, Université de Lille, France

License: Damien Pollet, Programmation objet en Java, 140h, L3, IMT Lille-Douai, France

License: Damien Pollet, Systèmes numériques, 18h, L3, IMT Lille-Douai, France

Master: Damien Pollet, Technologies des systèmes d'informations, 28h, M1, IMT Lille-Douai, France

Master: Damien Pollet, Ingénierie du logiciel, 7h, M2, IMT Lille-Douai, France

Master: Damien Pollet, Algorithmes pour les réseaux, 22h, M2, IMT Lille-Douai, France

Licence: Julien Delplanque, Structure de données, 18 EdTD, L3, Polytech Lille, France

Licence: Julien Delplanque, Base de données relationnelles, 16 EdTD, L3, Polytech Lille, France

Master: Julien Delplanque, Base de données, 12 EdTD, M1, Polytech Lille, France

Master: Julien Delplanque, Informatique Industrielle 2, 12 EdTD, M1, Polytech Lille, France

Master: Stéphane Ducasse. Pharo, 20h, University of Prague, Czech Republic

Master: Stéphane Ducasse, Advanced Design, 16h, M1, Université Brest, France

Licence: Stéphane Ducasse, Interpreters, 24h, L3, Université de Lille, France

Master: Stéphane Ducasse, Pharo, 2h, M1, Polytech Lille, France

Master: Stéphane Ducasse, Advanced Design, 2h, M1, ENS Paris Sud, France

Master: Stéphane Ducasse, Advanced Design, 20h, M1, Université de Picardie, France

Master: Stéphane Ducasse, Advanced Design, 20h, M2, Tunis ENSI, Tunisia

Master: Stéphane Ducasse, Advanced Design, 9h, M1, Université de Brest, France

Master: Stéphane Ducasse, Modelisation, 18h, M1, Paris Pantheon Sorbonne, France

Licence: Carolina Hernández Phillips, Algorithmique et Programmation, 12 EdTD, L3, IMT Lille Douai, France

E-learning

Pharo Mooc, 7 weeks, Licences and Master students

Pedagogical resources: *TinyBlog: Develop your First Web App with Pharo* [16] and *Pharo with Style* [17]

10.2.2. Supervision

PhD: Jason Lecerf, *Designing Language-Agnostic Code Transformation Engines*, 26 Nov 2019, CEA, Thierry Goubier, Stéphane Ducasse

PhD in progress: Oleksandr Zaitsev, *Machine Learning-Based Tools to Support Software Evolution*, started Jul 2019, Stéphane Ducasse, Nicolas Anquetil

PhD in progress: Benoît Verhaeghe, *Support à l'automatisation de la migration d'interface d'applications Web : le cas de GWT vers Angular*, started Jan 2019, Anne Etien, Nicolas Anquetil

PhD in progress: Théo Rogliano, *On multiple language kernel*, started Oct 2019, Stéphane Ducasse, Luc Fabresse

PhD in progress: Pierre Misse-Chanabier, *Modular, green, versatile Virtual Machines*, started Oct 2019, Stéphane Ducasse, Noury Bouraqadi

PhD in progress: Julien Delplanque, *Software Engineering Techniques Applied to Databases*, started Oct 2017, Anne Etien, Nicolas Anquetil

PhD in progress: Thomas Dupriez, *New Generation Debugger and Application Monitoring*, started Oct 2018, Stéphane Ducasse, Steven Costiou, Guillermo Polito

PhD in progress: Mahugnon Honoré Houekpetodji, *Multi-Facet Actionable for Information System Rejuvenation*, SPI Lille, France, Stéphane Ducasse, Nicolas Anquetil, Nicolas Dias, Jérome Sudich

PhD in progress: Carolina Hernández, *Tools for MicroKernels* Guillermo Polito and Luc Fabresse

10.2.3. Juries

Dynamic program analysis for suggesting test improvements to developers, Oscar Luis Vera Perez, KTH Royal Institute of Technology, (Sweden), 17/12/2019.

Adaptation non-anticipée de comportement : application au déverminage de programmes en cours d'exécution, Steven Costiou, Université de Bretagne Occidentale, Brest (France), 26/11/2018.

Modélisation et évaluation de la sécurité des parcours d'authentification Youssou Ndaye, Université Rennes 1, France, 10/12/19

Challenges in the collaborative evolution of a proof language and its ecosystem Théo Zimmermann, Université de Paris, France, 12/12/19

ARIANE: Automated Re-documentation to Improve software Architecture uNderstanding and Evolution, Alexandre Le Borgne, IMT Mines Alès, France, 12/12/19.

Contribution à la conception d'un Système de Recommandation dédié à la réutilisation de composants logiciels, Brice Evrard Tarehy, Université de Fianarantsoa, Madagascar, Jan. 2020.

10.3. Popularization

10.3.1. Articles and contents

- Olivier Auverlot, Stéphane Ducasse, Luc Fabresse. *TinyBlog: Créer votre première application web avec Pharo* [15].
- Olivier Auverlot, Stéphane Ducasse, Luc Fabresse. *TinyBlog: Develop your First Web App with Pharo* [16].
- Stéphane Ducasse. *Pharo with Style* [17].

10.3.2. Education

- A MOOC for Pharo is online (Stéphane Ducasse).
  http://mooc.pharo.org
- The Pharo Consortium was part of GSOC (Google Summer of Code) again in 2019. Oleksandr Zaitsev was co-organizer. RMoD mentored some of the Students.

10.3.3. Interventions

- Multiple public Pharo Sprints in Lille.
  https://association.pharo.org/events
- RMOD co-organized and participated at ESUG 2019.
  http://www.esug.org/wiki/pier/Conferences/2019

10.3.4. Internal action

- 30 Minutes de Sciences, Inria Lille - Nord Europe. 25 octobre 2019: *Hard bugs and how to track them with Unanticipated Debugging*, Steven Costiou.

<p align="center" style="color:red">ROMA Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Chair of Conference Program Committees

- Anne Benoit is the chair of HPC Algorithms Track of ISC 2020.
- Bora Uçar was the chair of the Algorithms Track of HiPC 2019; he has organized a mini-symposium at ICIAM 2019 on combinatorial scientific computing (12 talks) with Aydin Buluc and Alex Pothen.
- Frédéric Vivien was Global Chair of Topic 10 (Theory and Algorithms for Parallel Computation and Networking) of Euro-Par 2019, Göttingen, Germany, August 26-30 2019.

10.1.1.2. Member of the Conference Program Committees

- Anne Benoit was a member of the program committees of **IPDPS'20**, **IPDPS'19**, **SC'19**, **ESA'19**, and **Compas'19**.
- Loris Marchal was/is a member of the program committees of **HiPC 2019**, **HPCS 2019**, **ICPP 2019** and **ICPP 2020**.
- Grégoire Pichon was a member of the program committee of **Compas'19**.
- Yves Robert was a member of the program committee of **FTXS'19**, **Scala'19**, **PMBS'19** workshops co-located with SC'19 in Denver CO, and of the new conference with proceedings inside **SiamPP'20**.
- Bora Uçar was a member of the program committee of **PPAM 2019**, **ISC**, **ICPP**, **IPDPS 2020 Workshops**.
- Frédéric Vivien was a member of the program committees of **IPDPS'20**, **PDP 2020**, and **PDP 2019**.

10.1.1.3. Reviewer

- Loris Marchal has reviewed paper for the following conferences: **SPAA 2019**, **SC 2019**, **PODC 2019**,

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- Yves Robert is Associate Editor of JPDC (Elsevier Journal of Parallel and Distributed Computing), TOPC (ACM Trans. On Parallel Computing), IJHPCA (Int. J. High Performance Computing and Applications) and JOCS (J. Computational Science).
- Bora Uçar is a member of the editorial board of Parallel Computing, SIAM Journal on Matrix Analysis and Applications, SIAM Journal on Scientific Computing, and IEEE Transactions on Parallel and Distributed Computing.
- Frédéric Vivien is a member of the editorial board of the Journal of Parallel and Distributed Computing.

10.1.2.2. Reviewer - Reviewing Activities

- Loris Marchal has reviewed papers for the journal CCPE (Concurrency and Computation: Practice and Experience).
- Yves Robert reviewed papers for journals IEEE TC, IEEE TPDS, JPDC, ACM TOPC, IEEE Trans. Cloud Computing.

- Bora Uçar has reviewed papers for journals IEEE TPDS, ACM TOMS, SIAM SISC, Frontiers of Information Technology & Electronic Engineering.

10.1.3. Invited Talks

- Yves Robert delivered a keynote presentation at HPCS'2019 in Dublin (Int. Conf. on High Performance Computing & Simulation)

10.1.4. Leadership within the Scientific Community

- Anne Benoit is a member of the Steering Committee of IPDPS and HCW (Heterogeneity in Computing Workshop, co-located with IPDPS).
- Yves Robert is a member of the Steering Committee of IPDPS and HCW .
- Bora Uçar has participated in the steering committees of IPDPS, CSC, and HiPC; he has also served as vice-chair of IEEE Technical Committee on Parallel Processing.

10.1.5. Scientific Expertise

- Frédéric Vivien was re-elected to the scientific council of the École normale supérieure de Lyon. He is also a member of the scientific council of the IRMIA labex http://labex-irmia.u-strasbg.fr/.
- Yves Robert is an expert for the Horizon 2020 program of the European Commission and has reviewed two projects in 2019.
- Yves Robert chaired the HCERES evaluation committee for the Skoltech PhD program in Computational and Data-Intensive Science and Engineering, in Moscow, Russia.

10.1.6. Research Administration

- Frédéric Vivien is the vice-head of the LIP laboratory since September 2017.

10.2. Teaching - Supervision - Juries

- Yves Robert was a Committee member for the HDR of Bora Uçar. .

10.2.1. Teaching

Licence: Anne Benoit, Responsible of the L3 students at ENS Lyon, France

Master: Yves Robert, Responsible of Master Informatique Fondamentale, ENS Lyon, France

Licence: Anne Benoit, Algorithmique avancée, 48, L3, ENS Lyon, France

Licence: Yves Robert, Algorithmique, 48, L3, ENS Lyon, France

Licence: Yves Robert, Proababilités, 48, L3, ENS Lyon, France

Licence: Grégoire Pichon, Réseaux, 34, L3, Univ. Lyon 1, France

Licence: Loris Marchal, Compilation (practicals), 14, L3, Univ. Lyon 1, France

Licence: Loris Marchal, Operating systems (practicals), 12, L2, Univ. Lyon 1, France

Master: Anne Benoit, Parallel and Distributed Algorithms and Programs, 42, M1, ENS Lyon, France

Master : Bora Uçar, Combinatorial Scientific Computing (with Fanny Dufossé), 36, M2 Informatique Fondamentale, ENS Lyon, France.

Master : Loris Marchal, Data-Aware Algorithms, 30, M2 Informatique Fondamentale, ENS Lyon 1, France.

10.2.2. Supervision

PhD in progress: Yishu Du, "Resilience for numerical methods", started in December 2019, funding: China Scholarship Council and Inria, advisors: Yves Robert and Loris Marchal.

PhD in progress: Yiqin Gao, "Replication Algorithms for Real-time Tasks with Precedence Constraints", started in October 2018, funding: ENS Lyon, advisors: Yves Robert and Frédéric Vivien.

PhD in progress: Changjiang Gou, "Task scheduling on distributed platforms under memory and energy constraints", started in Oct. 2016, funding: China Scholarship Council supervised by Anne Benoit & Loris Marchal.

PhD in progress: Li Han, "Algorithms for detecting and correcting silent and non-functional errors in scientific workflows", started in September 2016, funding: China Scholarship Council, advisors: Yves Robert and Frédéric Vivien.

PhD in progress: Aurélie Kong Win Chang, "Techniques de résilience pour l'ordonnancement de workflows sur plates-formes décentralisées (cloud computing) avec contraintes de sécurité", started in October 2016, funding: ENS Lyon, advisors: Yves Robert, Yves Caniou and Eddy Caron.

PhD in progress: Valentin Le Fèvre, "Scheduling and resilience at scale", started in October 2017, funding: ENS Lyon, advisors: Anne Benoit and Yves Robert.

PhD in progress: Ioannis Panagiotas, "High performance algorithms for big data graph and hypergraph problems", started in October 2017, funding: Inria, advisor: Bora Uçar.

PhD in progress: Filip Pawlowski, "High performance tensor computations", started in October 2017, funding: CIFRE, advisors: Yves Robert, Bora Uçar and Albert-Jan Yzelman (Huawei).

10.2.3. Juries

- Loris Marchal is a responsible of the competitive selection of ENS Lyon students for Computer Science, and is thus a member of the jury of this competitive exam.

SOCRATE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

Tanguy Risset and Leonardo Cardoso have been at the origin ot the First French GNU Radio days in 2018: https://gnuradio-fr-18.sciencesconf.org/. This is a very visible result of the activity on CorteXlab. The second version of the workshop (called now *european GNU Radio days*) has almost double its number of participants in 2019: https://gnuradio-fr-19.sciencesconf.org/. Next year session is planned in June in Poitier.

Kevin Marquet has organized the conference "Vous avez dit sobriété (numérique) ?" within the Ecoinfo CNRS GDS (https://ecoinfo.cnrs.fr/2019/07/11/projets-ecoinfo-en-cours/).

8.1.1.1. Member of the Organizing Committees

- Tanguy Risset is member of the organizing committee of the second European GNU Radio days.

8.1.1.2. Chair of Conference Program Committees

Florin Hutu was session chair during the IEEE International Symposium on Signals Circuits and Systems, 11-12 July 2019, Iasi, Romania.

8.1.1.3. Member of the Conference Program Committees

Tanguy Risset was a member of the following technical program committees:

- IEEE Computer Society Annual Symposium on VLSI (ISVLSI) 2019
- Design Automation and Test in Europe (DATE) 2019
- International Conference on Cognitive Radio Oriented Wireless Networks (CROWNCOM) 2019

Florent de Dinechin was a member of the following technical program committees:

- IEEE Symposium on Computer Arithmetic (ARITH)
- IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM)
- Conférence d'informatique en Parallélisme, Architecture et Système (COMPAS)

Guillaume Villemaud was a member of the following technical program committee:

- EUCAP 2019,
- EuCNC 2019

8.1.2. Journal

8.1.2.1. Member of the Editorial Boards

Guillaume Villemaud is an associate editor of Annals of Telecommunications (Springer).

Florent de Dinechin was Guest Editor for a special issue of IEEE Transactions on Computers dedicated to computer arithmetic [4].

8.1.2.2. Reviewer - Reviewing Activities

Florin Hutu reviewed articles for the following conferences: 2019 International Conference on Advanced Technologies for Communications (ATC), 2019 IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC),

Florin Hutu Florin HUTU reviewed articles for the following journals: IEEE Transactions on Communications, IEEE Communications Letters, IEEE Journal of Radio Frequency Identification, Elsevier Advances in Space Research, MDPI Sensors, MDPI Applied Sciences.

8.1.3. Invited Talks

Florent de Dinechin gave a talk at the PAW workshop (Programmable Audio Workshop) organised by GRAME in Lyon on 14 dec. 2019. the title was: "FPGAs for low latency audio applications?" (https://faust.grame.fr/paw/#fpga)

Florent de Dinechin gave an invited lecture at ICTP (the International Center for Theoretical Physics) for the May 2019 edition of the Advanced Workshop on FPGA-based Systems-On-Chip for Scientific Instrumentation and Reconfigurable Computing.

Tanguy Risset gave a tutorial untitled "Writing a custom GNU Radio processing block"at the second edition of the *european GNU Radio days*, organized in besançon in June 2019 (https://gnuradio-fr-19.sciencesconf.org/resource/page/id/2).

Gero Müller gave an invited talk untitled "Intermittent power and high precision high speed power measurements" at Riot Summit 2019 (https://summit.riot-os.org/2019/blog/speakers/gero-muller/)

8.1.4. Leadership within the Scientific Community

Tanguy Risset is Vice-director of the FIL (CNRS Computer Science Research Federation of Lyon/Saint-Etienne).

Florent de Dinechin is director of the Citi-Lab.

8.1.5. Scientific Expertise

Guillaume Villemaud served as Research Expert for the European commission for the H2020-MSCA-NIGHT-2018.

Tanguy Risset is member of the Administration council (Conseil d'administration) of the GRAME institute (centre national de création musicale).

Guillaume Villemaud is a member of the Delphi Expert Panel on Software Defined Networks (SDN) and Network Functions Virtualisation (NFV).

8.1.6. Research Administration

Tanguy Risset is Vice-director of the FIL (CNRS Computer Science Research Federation of Lyon/Saint-Etienne).

Florent de Dinechin is director of the Citi-Lab.

Kevin Marquet is associate director of the CNRS GDS ECO-info (http://ecoinfo.cnrs.fr/)

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- Tanguy Risset is professor at the Telecommunications Department of Insa Lyon.
- Florent de Dinechin is a professor at the Computer Science Department of Insa Lyon. He also teaches computer architecture at ENS-Lyon.
- Guillaume Salagnac and Kevin Marquet are associate professors at the Computer Science Department of Insa Lyon.
- Guillaume Villemaud and Florin Hutu are associate professor at the Electrical Engineering Department of Insa Lyon.

8.2.2. Supervision

PhD in progress : **Gautier Berthou** : *Operating system for transiently powered systems*, Inria, (IPL ZEP) since 01/2018.

PhD in progress : **Andrea Bocco** : *Proposition d'une unité de caclul UNUM pour le calcul scientifique*, ANR Metalibm grant, since 12/2016.

PhD in progress : **Luc Forget** : *Algèbre linéaire calculant au plus juste*, ANR Imprenum, since 10/2018.

PhD in progress :**Yanni Zhou** : *Full Duplex and spatial modulation* since 10/2018

PhD in progress : **Tarik Lassouaoui** : *Tag 2 Tag communication* since 10/2018

PhD in progress : **Regis Rousseau** : *Wireless Power Transfer* since 10/2018

PhD starting : **Maxime Christ** : *Learning in Very Low Precision* since 10/2018

PhD defended : **Yohan Uguen** : *High-level synthesis and arithmetic optimizations*, École Doctorale MathInfo,Nov. 2019.

PhD defended : **Tristan Delizy** : *Gestion de la mémoire dynamique pour les systèmes embarqués avec mémoire hétérogène*, École Doctorale MathInfo, Dec. 2019.

8.2.3. Juries

- Tanguy Risset was a member of the jury of the these following theses:
    - Arthur Hugeat (U. Bourgogne Franche-comté)
    - Tristan Delizy (U. Lyon)
- Tanguy Risset was a member of the jury of the HDR of Matthieu Gautier (U. Rennes)
- Florent de Dinechin was a reviewer for
    - the PhD of Geneviève Ndour (U. Rennes 1)
    - the PhD of Yohan Chatelain (U. Paris Saclay)

8.3. Popularization

8.3.1. Education

Florent de Dinechin gave a lecture in Grenoble for high-school teachers, in the framework of the ISN convention between Académie de Grenoble and Inria.

<p align="center" style="color:red">SPIRALS Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

Simon Bliudze

- co-chair International Workshop on Methods and Tools for Rigorous System Design (MeTRiD)

Laurence Duchien

- general chair European Conference on Software Engineering (ECSA)

Walter Rudametkin Ivey

- Atelier sur la Protection de la Vie Privée (APVP)

10.1.1.2. Member of the Organizing Committees

Pierre Bourhis

- Atelier sur la Protection de la Vie Privée (APVP)
- Knowledge Comparison Workshop (KOCOON)

Clément Quinton

- publicity chair International Systems and Software Product Line Conference (SPLC)
- proceedings chair European Conference on Software Engineering (ECSA)

Romain Rouvoy

- poster & demonstration chair International Symposium on Reliable Distributed Systems (SRDS)

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

Laurence Duchien

- co-chair International Systems and Software Product Line Conference (SPLC)

10.1.2.2. Member of the Conference Program Committees

Simon Bliudze

- International Conference on Coordination Models and Languages (Coordination)
- International Conference on Formal Methods in Software Engineering (FormaliSE)
- International Conference on Formal Aspects of Component Software (FACS)
- International Conference on Verification and Evaluation of Computer and Communication Systems (VECoS)
- International Symposium on Model-Based Safety and Assessment (IMBSA)
- Workshop on Formal Approaches for Advanced Computing Systems (FAACS)
- International Workshop on Foundations of Coordination Languages and Self-Adaptative Systems (FOCLASA)
- Embedded Systems and the Internet of Things track at Euromicro Software Engineering and Advanced Applications conference (ES-IoT@SEAA)

Pierre Bourhis

- International Conference on Database Theory (ICDT)
- ACM SIGMOD International Conference on Management of Data (PODS)
- International Joint Conferences on Artificial Intelligence (IJCAI)
- Conférence sur la Gestion de Données – Principes, Technologies et Applications (BDA)

Laurence Duchien

- International Conference on Software Architecture (ICSA)
- International Workshop Series on Conducting Empirical Studies in Industry (CESI) in conjonction with the ICSE conference
- International Workshop on Software Qualities And Their Dependencies (SQADE) in conjunction with the ESEC/FSE conference
- Belgium-Netherlands Software Evolution Workshop

Pierre Laperdrix

- USENIX Workshop on Offensive Technologies (WOOT)

Philippe Merle

- International Conference on Cooperative Information Systems (CoopIS)
- International Conference on Evolving Internet (INTERNET)
- International Conference on Cloud Computing, GRIDs, and Virtualization (CLOUD COMPUTING)
- International Conference on Advanced Service Computing (SERVICE COMPUTATION)
- International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies (UBICOMM)
- Workshop on CrossCloud Infrastructures & Platforms (CrossCloud)
- International Workshop on Adaptive and Reflective Middleware (ARM)

Clément Quinton

- International Workshop on Variability Modelling of Software-Intensive Systems (VaMoS)
- ACM Symposium on Applied Computing (SAC) SA-TTA Track
- International Systems and Software Product Line Conference (SPLC)
- SPLC Demonstration and Tools Track
- International Workshop on Software Product Line Teaching (SPLTea)
- Women in Software Architecture (WSA ECSA)

Romain Rouvoy

- International Conference on Service Oriented Computing (ICSOC)
- ACM Symposium on Applied Computing (SAC) DADS Track
- International Conference on Ambient Systems, Networks and Technologies (ANT)
- ACM International Conference on Distributed and Event-based Systems (DEBS)
- International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP)
- International Workshop on Advances in Mobile App Analysis (A-Mobile)
- Eurosys Doctoral Workshop

Lionel Seinturier

- IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft)
- ACM Symposium on Applied Computing (SAC) SA-TTA Track
- International Conference on Software Technologies (ICSOFT)
- International Conference on Service Oriented Computing (ICSOC)
- ACM International Conference on Management of Emergent Digital EcoSystems (MEDES)
- International Conference on Computational Collective Intelligence (ICCCI)

Walter Rudametkin Ivey

- International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS) Track D: Security and Privacy

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Lionel Seinturier is editor for software engineering of the ISTE-Wiley Computer Science and Information Technology book collection.

10.1.3.2. Reviewer - Reviewing Activities

Simon Bliudze: Science of Computer Programming (SCICO), Journal of Logical and Algebraic Methods in Programming (JLAMP)

Laurence Duchien: Journal of Systems and Software (JSS).

Pierre Laperdrix: IEEE Access, Emerald Journal of Intellectual Capital.

Philippe Merle: ACM Computing Surveys (CSUR), Elsevier Future Generation Computer Systems (FGCS), IEEE Transactions on Services Computing (TSC), IEEE Access, Wiley Software Practice and Experience (SPE).

Clément Quinton: Elsevier Information and Software Technology (IST), Science of Computer Programming (SCICO).

Romain Rouvoy: Elsevier Information and Software Technology (IST), Elsevier Journal of Systems and Software (JSS), ACM Transactions on Internet of Things (TOIT), ACM Computing Surveys (CSUR), IEEE Transactions on Software Engineering (TSE).

Walter Rudametkin Ivey: ACM Transactions on the Web (TWEB), IEEE Transactions on Services Computing (TSC), IEEE Communications Magazine.

Lionel Seinturier: ACM Transactions on Software Engineering and Methodology (TOSEM), Springer Journal of Internet Services and Applications (JISA), Wiley Journal of Software Evolution and Process (JSME).

10.1.4. Invited Talks

Simon Bliudze gave a tutorial on the Rigorous Component-based Design in BIP at the 6th International Symposium on Model-Based Safety and Assessment (IMBSA) and an invited lecture on Component-Based Design of Concurrent Software in BIP for a group of Master 2 students at the Aristotle University of Thessaloniki (Greece).

Pierre Bourhis gave an invited talk on Reasoning on Leak of Information for Database Views at the Emerging Challenges in Databases and AI Research Seminar in Santa Cruz, Chile.

Romain Rouvoy gave an invited talk on "*Enabling In situ Location Privacy*" during the IRIXYS workshop organized in Lyon in June 2019. He was also a keynote speaker during the national days of the GDR GPL in June 2019 with a talk entitled "*Quels défis pour le développement durable des logiciels ?*".

10.1.5. Leadership within the Scientific Community

Romain Rouvoy is the co-head of the "Groupe de Travail Génie Logiciel pour les Systèmes Cyber-physiques" of the GDR GPL.

10.1.6. Scientific Expertise

Laurence Duchien was member of the Hcéres committee for the UMR Laboratoire d'Informatique de Grenoble (LIG). She was expert for Canada NSERC, and DGRI (Ministère de la Recherche) program PHC. She was chair of the recruitment committee for Professor in Computer Science at ENS Lyon. She was member of the recruitment committee for two associate professor positions at the University of Luxembourg.

Romain Rouvoy was vice-chair of the recruitment committee for research scientists at Inria Lille - Nord Europe. He was member of the recruitment committee for associate researchers at University of Luxembourg. He was member of scientific committee 25 - Infrastructures (networks, high performance computing and storage), software sciences and technologies of the French Research Agency (ANR). He was scientific expert for DRRT IDF.

Lionel Seinturier was chair of the recruitment committee for Professor in Computer Science at CNAM Paris. He was member of the promotion committee to Tenured Associate Professor, Department of Electrical and Computer Engineering, University of Waterloo, Canada. He was member of the IEEE Technical Council on Software Engineering Distinguished Educational Award Committee. He was scientific expert for Chile CONICYT, Belgium Innoviris, DRRT IDF.

10.1.7. Research Administration

Simon Bliudze was member of steering committees of International Interaction and Concurrency Experience workshop (ICE) and the International Symposium on Formal Approaches to Parallel and Distributed Systems (4PAD). He is lead guest editor for a special issue on Verification and Evaluation of Computer and Communication Systems (VECoS) of Innovations in Systems and Software Engineering: A NASA Journal (ISSE, Springer) and guest editor for a special issue on Methods and Tools for Rigorous System Design (MeTRiD) of the International Journal on Software Tools for Technology Transfer (STTT, Springer).

Laurence Duchien is member of the CNRS CoCNRS section 6 committee, and of the "bureau" of this committee. She is chairing the scientific and technical council of the PICOM business and research cluster for the retail industry. She is member of the scientific councils of IMT Atlantique (Nantes), Labex CIMI (Toulouse), IRT SystemX (Saclay). She is member of the steering committees of the European Conference on Software Architecture (ECSA) and of the Systems and Software Product Lines Conference (SPLC). She was guest editor for a special issue on the Configurable Systems of Springer Empirical Software Engineering journal. She was member of the committee for the Women in Science and Engineering Award from IEEE TCSE. She was member of a panel on soft skills for PhD students on humanities and social sciences for MESHS Lille. She is in charge of the Career development & Intersectoral secondments in the PEARL Project ("Programme for EArly-stage Researchers in Lille") at I-SITE Université Lille Nord Europe.

Philippe Merle is elected member of the Inria scientific board (CS), elected member of the Inria technical committee (CTI), elected member of the Inria national committee on "hygiène, de sécurité et des conditions de travail" (CNHSCT), president of the CUMI (Comité des Utilisateurs des Moyens Informatiques), permanent secretary of the CLHSCT (Comité Local d'Hygiène, de Sécurité et de Conditions de Travail), and elected member of the centre committee for the Inria Lille - Nord Europe research center. He is member of the steering committee of the Inria's continuous integration service. He is member of SPI doctoral school council of University of Lille.

Romain Rouvoy is an elected member of the "bureau" of the French chapter of the ACM Special Interest Group in Operating Systems (SIGOPS / ASF) and elected member of the administrative council of SpecifCampus. He is a member of the steering committee of DAIS (International Conference on Distributed Applications and Interoperable Systems).

Walter Rudametkin Ivey is member of the CDT (Comité de Développement Technologique) of the Inria Lille - Nord Europe research center.

Lionel Seinturier is member of the BSC (Bureau Scientifique du Centre) for the Inria Lille - Nord Europe research center. Until August 2019, he was Scientific Advisor for the evaluation of ICT research laboratories

at the Hcéres. Since December 2019, he is chair of CNU27, the Computer Science section of the "Conseil National des Universités".

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Simon Bliudze is, in addition to his tenure junior research position at Inria, chargé d'enseignement at École Polytechnique, Palaiseau, France, in the Department of Computer Sciences (DIX).

- INF411: Les bases de la programmation et de l'algorithmique, 40h, 2nd year of the Engineering cycle
- INF442: Traitement des données massives, 40h, 2nd year of the Engineering cycle

Pierre Bourhis is, in addition to his tenure junior research position at CNRS, chargé d'enseignement spécialité Sciences des données at École Polytechnique, Palaiseau, France, in the Department of Computer Sciences (DIX).

- Info553: Bases de données, 18h, Cycle Polytechnique
- Modal Graphe Géant, 36h

Laurence Duchien teaches at the Université de Lille in the FST faculty. She is project leader for doctoral studies at Université de Lille.

- Software engineering project, 60h, Level M2, Master MIAGE FI
- Software engineering project, 50h, Level M2, Master MIAGE FC/FA
- Research initiation, 20h, Level M2, Master of Computer Science

Clément Quinton teaches at the Université de Lille in the FST faculty.

- Introduction to Computer Science, 46.5h, Level L1, Licence of Computer Science
- Object-oriented programming, 36h, Level L2, Licence of Computer Science
- Object-oriented design, 42h, Level L3, Licence of Computer Science
- Design of distributed applications, 42h, Level M1, Master of Computer Science
- Advanced design of distributed applications, 37.5h, Level M2, Master MIAGE
- Infrastructure and frameworks for the Internet, 33.75h, Level M2, Master of Computer Science
- Software product lines, 7.5h, Level M2, Master of Computer Science
- Suivi de stages et de projets, 30h, Licence and Master of Computer Science

Romain Rouvoy teaches at the Université de Lille in the FST faculty. He heads the Master of Computer Science program at the Université de Lille.

- Design of distributed applications, 12h, Level M1, Master of Computer Science
- Object-oriented design, 4h, Level L3, Licence of Computer Science
- Suivi de projets, 20h, Level M2, Master of Computer Science

Walter Rudametkin Ivey teaches at the Université de Lille in the Polytech engineering school.

- GIS4 Programmation par Objets, 32h
- GIS4 Architectures Logicielles, 26h
- GIS2A3 (apprentissage) Projet programmation par Objet, 24h
- IMA2A4 (apprentissage) Conception Modélisation Objet, 24h
- IMA3 Programmation Avancée, 62h
- GBIAAL4 Bases de données, 22h
- GIS5 Suivi de projets, 42h
- GIS2A (apprentissage) Suivi d'apprentis, 28h

Lionel Seinturier teaches at the Université de Lille in the FST faculty. Until July 2019, he headed the Computer Science Department at the Faculty of Science and Technology of the Université de Lille.

- Conception d'Applications Réparties, 50h, Level M1, Master MIAGE
- Infrastructures et Frameworks Internet, 70h, Level M2 E-Services IAGL TIIR, Master of Computer Science

10.2.2. Supervision

- PhD: Antoine Vastel, Cartographie de la qualité d'expérience pour l'accès à l'internet mobile, Université de Lille, October 2019, Romain Rouvoy & Walter Rudametkin. [14]
- PhD: Benjamin Danglot, Automatic Unit Test Amplification for DevOps, Université de Lille, November 2019, Martin Monperrus & Lionel Seinturier. [11]
- PhD: Lakhdar Meftah, Cartography of the Quality of Experience for Mobile Internet Access, Université de Lille, December 2019, Romain Rouvoy, co-supervision with Isabelle Chrisment (Inria Madynes). [13]
- PhD: Sarra Habchi, Une supervision de contexte sensible à la confidentialité pour les développements logiciels en crowdsource, Université de Lille, December 2019, Romain Rouvoy. [12]
- PhD in progress: Mohammed Chakib Belgaid, Développement durable des logiciels vers une optimisation énergétique de bout en bout des systèmes logiciels, January 2018, Romain Rouvoy & Lionel Seinturier.
- PhD in progress: Vikas Mishra, Collaborative Strategies to Protect Against Browser Fingerprinting, October 2018, Romain Rouvoy & Walter Rudametkin & Lionel Seinturier.
- PhD in progress: Marion Tommasi, Collaborative Data-centric Workflows: Towards Knowledge Centric Workflows and Integrating Uncertain Data, October 2018, Pierre Bourhis & Lionel Seinturier.
- PhD in progress: Antonin Durey, Leveraging Browser Fingerprinting to Fitht Fraud on the Web, October 2018, Romain Rouvoy & Walter Rudametkin & Lionel Seinturier.
- PhD in progress: Sacha Brisset, Automatic Spotting and fixing or Recurrent user Experience issues. Detecting and Fixing Anomalies by applying Machine Learning on user Experience Data, November 2018, Lionel Seinturier & Romain Rouvoy & Renaud Pawlak & Yoann Couillec.
- PhD in progress: Zakaria Ournani, Eco-conception des logiciels : modélisation de l'efficience énergétique des logiciels et conception d'outils pour mesurer et réduire leur consommation d'énergie, November 2018, Romain Rouvoy.
- PhD in progress: Zeinab Abou Khalil, November 2017, Laurence Duchien & Clément Quinton, co-supervision with Tom Mens (University of Mons, Belgium).
- PhD in progress: Guillaume Fieni, GreenData : Vers un traitement efficient et éco-responsable des grandes masses de données numériques, October 2017, Romain Rouvoy & Lionel Seinturier.
- PhD in progress: Trình Lê Khánh, Design of Correct-by-Construction Self-Adaptive Cloud Applications using Formal Methods, October 2019, Philippe Merle & Simon Bliudze.

10.2.3. Juries

Simon Bliudze

- Wajeb Saab (École polytechnique fédérale de Lausanne, Switzerland), examiner
- Rim El Ballouli (Université Grenoble Alpes), examiner

Laurence Duchien

- Stepan Shevtsov (Linnaeus University, Sweden and KU Leuven, Belgium), reviewer
- HDR, Marius Bilasco (Université de Lille), chair
- Thibault Raffaillac (Université de Lille), chair

Romain Rouvoy

- Hanyang Cao (Université de Bordeaux), reviewer
- Mousa Hayam (INSA Lyon), reviewer
- Stefan Contiu (Université de Bordeaux), reviewer
- Adrien Luxey (Université de Rennes 1), reviewer

Lionel Seinturier

- HDR, Thomas Polacsek (Université de Toulouse), reviewer
- Xinxiu Tao (Université Grenoble Alpes), reviewer
- Benjamin Benni (Université Nice Sophia Antipolis), reviewer

10.3. Popularization

10.3.1. Interventions

Pierre Laperdrix gave a talk in May at the RuhrSec IT security conference organized by the Ruhr University Bochum. The aim of the conference is to popularize different topics to an audience of non-experts so that they are familiar with the latest trends in computer security.

<p style="text-align:center; color:red">STACK Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

- A. Lebre co-organized the TILECS workshop (Towards an Infrastructure for Large-Scale Experimental Computer Science), Grenoble, July 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- S. Ibrahim was the program chair of the IEEE BigDataSE 2019.
- S. Ibrahim was the program chair of the Smart Data-2019.
- S. Ibrahim was the track co-chair for the Cloud Computing Track of CCGrid 2019.

10.1.2.2. Member of the Conference Program Committees

- H. Coullon was a member of the program committees of CCGrid 2019 and ICCS 2019.
- S. Ibrahim was a member of the program committees of SC'19, Poster track of SC 2019, ICPP 2019, Cluster 2019, ICA3PP 2019, PDSW@SC'19, and HPBDC@IPDPS'19.
- A. Lebre was a member of the program comittees of ICC 2019, IC2E 2019, CCGRID 2019, Cluster 2019, and CloudCom 2019.
- T. Ledoux was a member of the program committees of the conference Compas'19, of the 1st Workshop on Service Quality and Quantitative Evaluation in new Emerging Technologies @ IC2E'19, CrossCloud'19@CCGrid, and ARM'19@Middleware.
- J.-M. Menaud was a member of the program committees of SMARTGREENS'19, SOFTCOM 19.
- M. Südholt was a member of the program committees of CCGrid'19 and CloudCom'19.

10.1.2.3. Member of the Conference Steering Committees

- A. Lebre is a member of the steering committee of the international conference of Fog and Edge Computing (ICFEC).
- M. Südholt is a member of the steering committee of the international conference Programming.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- A. Lebre is an Associate Editor of the IEEE Transactions on BigData.
- A. Lebre is an Associate Editor of the IEEE Transactions on Cloud Computing.
- S. Ibrahim is an Associate Editor of Springer Frontiers of Computer Science journal.
- M. Südholt is an Associate Editor of the journal Programming.

10.1.3.2. Reviewer - Reviewing Activities

- S. Ibrahim has been a reviewer for the following journals: Future Generation Computer Systems, IEEE Internet Computing.
- A. Lebre has been a reviewer for the IEEE Transactions on Cloud Computing journal.
- T. Ledoux has been a reviewer for the following journals: Journal of Systems Architecture - Elsevier and Future Generation Computer Systems.
- M. Südholt has been a reviewer for the journal Transactions of Software Engineering (IEEE TSE).

10.1.4. Invited Talks

- H. Coullon has given a talk to the WIDE Inria team, "Distributed Software Management: Efficiency, Software Engineering and Verification", Rennes, France, Aug. 2019.
- H. Coullon has given a talk to the joint LaMHa/LTP working group of the GDR GPL, "Efficient and Safe Distributed Software Commissioning", Paris, France, Nov. 2019.
- H. Coullon has given a talk to the Department of Computer Science at the University of Tromsø, the Arctic University of Norway, "Efficient and Safe Distributed Software Commissioning and Reconfiguration", Norway, Dec. 2019.
- A. Lebre has given a talk to the Inria Business Club in Paris, France, May 2019.
- A. Lebre has given a talk to the TILECS Workshop in Grenoble, France, July 2019.
- A. Lebre has given a talk to the Journées Clouds in Toulouse, France, Sept 2019.
- A. Lebre has given a talk to the Inria/Interdigital Workshop in Rennes, France, Dec. 2019.

10.1.5. Scientific Expertise

- A. Lebre is a member of the scientific committe of the joint lab between Inria and Nokia Bell Labs.

10.1.6. Research Administration

- A. Lebre is a member of the executive committee of the GDR CNRS RSD "Réseau et Système distribué" and Co-leader of the transversal action Virtualization and Clouds of this GDR since 2015.
- A. Lebre is a member of the executive and architect committees of the Grid'5000 GIS (Groupement d'intérêt scientifique).
- A. Lebre is a member of the executive committee of the <I/O> Lab, a joint lab between Inria and Orange Labs.
- J. Noyé is the Deputy Head of the Automation, Production and Computer Sciences department of IMT Atlantique.
- J.-M. Menaud is organizer of "Pôle Science du Logiciel et des Systèmes Distribués" in Laboratoire des Sciences du Numérique à Nantes (LS2N). He is involved in the GIS VITTORIA (VIrTual inTegrative Oncology Research and InnovAtion).
- J.-M. Menaud is involved in the GIS PERLE (Pôle d'Excellence de la Recherche Ligérienne en Energie).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- S. Ibrahim is the co-coordinator of the international Master's program in Cloud Computing and Services at University of Rennes 1.
- T. Ledoux is the head of the apprenticeship program in Software Engineering FIL (http://www.imt-atlantique.fr/formation/ingenieur-par-apprentissage/ingenieurs-specialite-ingenierie-logicielle).
  This 3-year program leads to the award of a Master degree in Software Engineering from the IMT Atlantique.
- H. Coullon is responsible for the Computer Science domain of the new apprenticeship program in Industry 4.0 (FIT) of IMT Atlantique. This 3-year program leads to the award of a Master degree in Industry 4.0 from the IMT Atlantique.

10.2.2. Supervision

- PhD: Mohammad Mahdi Bazm, co-director: J.M. Menaud, director: M. Südholt, "Architecture d'isolation unifiée et mécanismes de lutte contre les canaux auxiliaires pour infrastructures cloud décentralisées", Defended July 2019, the8th.

- Phd: Linh Thuy Nguyen, director: A. Lebre, "Fast delivery of Virtual Machines and Containers: Understanding and optimizing the boot operation", defended on Sept 2019, the 24th.

- PhD: Jad Darrous, advisor: S. Ibrahim, director: C. Perez (Avalon), "Scalable and Efficient Data Management in Distributed Clouds: Service Provisioning and Data Processing" Defended Dec 2019, the 17th.

- PhD: Dimitri Saingre, advisor: T. Ledoux, director: J-M. Menaud.

- PhD: Maverick Chardet, advisor: H. Coullon, director: C. Perez (Avalon).

- PhD: Emile Cadorel, advisor: H. Coullon, director: J-M. Menaud.

- PhD: Jolan Philippe, adviros: H. Coullon, M. Tisi (NaoMod), director: G. Sunye (NaoMod).

- PhD: Yewan Wang, advisor: J.-M. Menaud.

- PhD: Maxime Belair, advisor: J.-M. Menaud.

- PhD: Fatima-zahra Boujdad, advisor: M. Südholt.

- PhD: Wilmer Garzon, advisor: M. Südholt.

- PhD: Sirine Sayadi, advisor: M. Südholt.

- Postdoc: David Guyon, advisor: S. Ibrahim.

- Postdoc: Thomas Lambert, advisor: S. Ibrahim.

- Postdoc: Jonathan Pastor, advisor: J.-M. Menaud.

- Postdoc: Rémy Pottier, advisor: J.-M. Menaud.

- Postdoc: Simon Robillard, advisor: H. Coullon.

- Postdoc: Hamza Sahli, advisor: T. Ledoux.

- Postdoc: Alexandre Van Kempen: A. Lebre (until June 2018).

- Engineer: Ronan-Alexandre Cherrueau, advisor: A. Lebre.

- Engineer: Brice Nédelec, advisor: T. Ledoux.

- Engineer: Dimitri Pertin, advisor: H. Coullon (Sept, Oct 2019).

- Engineer: Javier Rojas Balderrama, advisor: M. Simonin/A. Lebre.

- Engineer: Charlène Servantie, advisor: H. Coullon.

10.2.3. Juries

- H. Coullon was a reviewer of the Master thesis committee of Jolan Philippe, "Systematic development of efficient programs on parallel data structures", Northern Arizona University USA, Feb. 05, 2019.

- H. Coullon was a reviewer of the PhD committee of Alexandre Da Silva Veith, "Quality of Service Aware Mechanisms for (Re)Configuring Data Stream Processing Applications on Highly Distributed Infrastructure", Univ. Lyon, Sept. 32, 2019.

- H. Coullon was a reviewer of the PhD committee of KsanderEJJAAOUANI, "Conception du modèle de programmation INKS pour la séparation des préoccupations algorithmiques et d'optimisation dans les codes de simulation numérique ; application à la résolution du système Vlasov/Poisson 6D", Univ. Stasbourg, Nov. 25, 2019.

- S. Ibrahim was a member of the PhD committee of Chaopeng GUO, "Energy-efficient Resource Provisioning for Cloud Databases", Université Paul Sabatier, Jun. 14, 2019.

- A. Lebre was a member of the PhD Committee of Ali Reza Zamani Zadeh Najari, "Scheduling Edge And In-Transit Computing Resources For Stream Processing Applications", University of Rutgers (USA), May 2019.

- A. Lebre was a member of the PhD Committee of Luke Bertot "Improving the simulation of IaaS Clouds", University of Strasbourg (France), June 2019.

- A. Lebre was a reviewer and member of the PhD Committee of Loic Perennou, "Virtual Machine Experience Design: A Predictive Resource Allocation Approach for Cloud Infrastructures". Conservatoire National des Arts et Metier Paris (France), Oct 2019.

- A. Lebre was a member of the PhD Committee of Genc Tato "Lazy and Locality-Aware Building blocks for Fog Middleware: A Service Discovery Use Case", University of Rennes (France), Dec 2019.

- T. Ledoux was a member of the PhD committee of Xinxiu Tao, "Reliability of changes in cloud environment at PaaS level", Univ. Grenoble Alpes, Jan. 29, 2019.

- T. Ledoux was a member of the PhD committee of Amir Teshome Wonjiga, "User-centric security monitoring in cloud environments", Univ. Rennes 1, Jun. 03, 2019.

- T. Ledoux was a reviewer of the PhD committee of Umar Ozeer, "Autonomic Resilience of Distributed IoT Applications in the Fog", Univ. Grenoble Alpes, Dec. 11, 2019.

- J.-M. Menaud was a member of the PhD committee of Léo Grange, "Gestion de centre de données avec sources d'énergies renouvelables intermittentes et incertaines", Univ. Toulouse, Oct. 3, 2019.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- S. Ibrahim, Online publication http://emergences.inria.fr/2019/newsletter-n59/l59-Kerstream: *Un intergiciel post-Hadoop pour gérer les flux de données*.

10.3.2. Articles and contents

As a follow-up of the aLIFE workshop (Nantes, Jan. 2018), organized in partnership with colleagues from IMT Atlantique and gathering both academic and industrial partners, Hélène Coullon and Jacques Noyé have participated to a booklet publication [29] summarizing the workshop discussions and proposing a shared vision of what software research could bring to Industry 4.0 initiatives.

<div align="center">

STORM Project-Team

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10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Selection

10.1.1.1. Member of the Conference Program Committees

- Emmanuelle Saillard: Correctness workshop, Compas 2019, PPAM 2019, OMASE'19, 4PAD'19
- Olivier Aumage: SC Asia 2019, Euro-Par 2019, ICPADS 2019, PAW-ATM
- Samuel Thibault: HCW 19
- Raymond Namyst: SC 19, HiPC 19, CCGRID 19, ISC 19, ICCS 19, PPAM 19, RADR 19

10.1.1.2. Reviewer

STORM members have conducted reviewing activities for the following conferences and workshops: Correctness workshop, Compas, PPAM, OMASE, 4PAD, HCW 19

10.1.2. Journal

10.1.2.1. Reviewer - Reviewing Activities

STORM members have conducted reviewing activities for the following journals: JPDC, IEEE TII

10.1.3. Invited Talks

- Olivier Aumage: Cluster SysNum (Bordeaux, Jan. 24, 2019 and Mar. 8, 2019), 10-Year PlaFRIM (Bordeaux, May. 23, 2019), SPPEXA (Dresden, Germany, Oct. 21, 2019)
- Samuel Thibault: ENS Lyon seminar (Lyon, Jan 2019), ENS Lyon seminar (Lyon, May 2019), Workshop SIAM CSE (Spokane, Feb 2019), Workshop PADAL (Bordeaux, Sep 2019)
- Raymond Namyst: Aristote Seminar about "Toward ExaScale Computing" (Ecole Polytechnique, May 2019)

10.1.4. Scientific Expertise

- Olivier Aumage: Review of one project proposal for the French national research agency (ANR)
- Raymond Namyst: Scientific Advisor for CEA/DAM (French Department of Energy) HPC research groups

10.1.5. Research Administration

- Olivier Aumage: Permanent Contact for Team STORM.
- Emmanuelle Saillard: Member of the Commission de délégation at Inria Bordeaux Sud-Ouest

10.1.6. Standardization Activities

- Olivier Aumage represents Inria at the OpenMP ARB Standardization Committee.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Engineering School: Emmanuelle Saillard, Introduction to Algorithms, 16HeCI, L3, ENSEIRB-MATMECA.
- Engineering School: Emmanuelle Saillard, Tree Structure, 16HeCI, L3, ENSEIRB-MATMECA.
- Engineering School: Emmanuelle Saillard, Harmonisation, 10HeTD, L3, ENSEIRB-MATMECA.

- Engineering School: Emmanuelle Saillard, Languages of parallelism, 12HeC, M2, ENSEIRB-MATMECA.
- Engineering School: Adrien Cassagne, Microprocessors architecture, 20HeTD, L3, ENSEIRB-MATMECA.
- Engineering School: Romain Lion, System Programming, 18HeTD, M1, ENSEIRB-MATMECA.
- Licence: Marie-Christine Counilh, Introduction to Computer Science (64HeTD), Introduction to C programming (52HeTD), L1, University of Bordeaux.
- Master MIAGE: Marie-Christine Counilh, Object oriented programming in Java (30HeTD), M1, University of Bordeaux.
- Licence: Samuel Thibault is responsible for the computer science topic of the first university year.
- Licence: Samuel Thibault is responsible for the new Licence Pro ADSILLH (Administration et Développeur de Systèmes Informatiques à base de Logiciels Libres et Hybrides).
- Licence: Samuel Thibault is responsible for the 1st year of the computer science Licence.
- Licence: Samuel Thibault, Introduction to Computer Science, 32HeTD, L1, University of Bordeaux.
- Licence: Samuel Thibault, Networking, 51HeTD, Licence Pro, University of Bordeaux.
- Master: Samuel Thibault, Operating Systems, 24HeTD, L1, University of Bordeaux.
- Engineering School: Denis Barthou is the head of the computer science teaching department of ENSEIRB-MATMECA (300 students, 20 faculties, 120 external teachers)
- Engineering School: Denis Barthou, Architectures (L3), Parallel Architectures (M2), Procedural Generation for 3D Games (M2), C/Algorithm projects (L3)
- Licence, Pierre-André Wacrenier, is responsible for the 3rd year of the computer science Licence.
- Licence, Pierre-André Wacrenier, Introduction to Computer Science (64HeTD, L1), Systems Programming (64HeTD, L3), University of Bordeaux.
- Master, Pierre-André Wacrenier, Parallel Programming (64HeTD), University of Bordeaux.
- Raymond Namyst was involved in the introduction of Computer Science courses in the French High School (Lycée) scholar program. In particular, he was in charge of organizing a one-week condensed training session to 96 High School teachers on the following topics: Computer Architecture, Operating Systems, Networks and Robotics. The goal was to prepare then to teach computer science basics to students starting from September 2019, and to help them to prepare material for practice sessions.
- Denis Barthou was teacher for the previous courses, in Computer Architecture.

10.2.2. Supervision

- PhD in progress: Tassadit Célia Ait Kaci, March 2019, Emmanuelle Saillard, Marc Sergent, Denis Barthou
- PhD in progress: Paul Beziau, October 2018, Raymond Namyst
- PhD in progress: Adrien Cassagne, October 2017, Olivier Aumage, Denis Barthou, Christophe Jégo, Camille Leroux.
- PhD in progress: Idriss Daoudi, October 2018, Olivier Aumage, Thierry Gautier.
- PhD in progress: Romain Lion, October 2018, Samuel Thibault
- PhD in progress: Gwenolé Lucas, November 2019, Raymond Namyst, Abdou Guermouche
- PhD in progress: Van Man Nguyen, November 2019, Emmanuelle Saillard, Julien Jaeger, Denis Barthou, Patrick Carribault
- Internship: Firmin Martin, June 2019 - August 2019, Emmanuelle Saillard
- Internship: Radjasouria Vinayagame, November 2019 - January 2020, Emmanuelle Saillard

- Internship: Pierre-Antoine Rouby, May - July 2019 , Samuel Thibault
- Internship: Mehdi Naciri, January - August 2019, Adrien Cassagne, Denis Barthou
- Internship: Mael Keryell, January - April 2019, Denis Barthou
- Master's Thesis: Van Man Nguyen, January - September 2019 , Emmanuelle Saillard, Julien Jaeger, Denis Barthou, Patrick Carribault
- Master's Thesis: Gwenolé Lucas, March - Septembre 2019, Pierre-André Wacrenier, Abdou Guermouche, Mathieu Faverge
- PhD completed: Hugo Brunie, March 2019, Denis Barthou
- PhD completed: Pierre Huchant, March 2019, Denis Barthou
- PhD completed: Arthur Loussert, December 2019
- PhD completed: Raphaël Prat, October 2019

10.2.3. Juries

- Marie-Christine Counilh : Ph.D defense of Pierre Huchant at the University of Bordeaux, Mar. 2019 (member)
- Olivier Aumage : Ph.D defense of Ksander Ejjaaouani at the Maison de la simulation in Saclay, Oct. 25, 2019 (invited member)
- Denis Barthou was member of the following PhD/HdR committees:
    - PhD of Fabian Gruber (reviewer): "Debogage de performance pour code binaire: Analyse de sensitivité et profilage de dépendence", Grenoble Alpes University, December 2019
    - HdR of Guillaume Mercier (president): "Évolutions du passage de messages face aux défis de la gestion des topologies matérielles hiérarchiques", University of Bordeaux, December 2019
    - PhD of Maxime Schmitt (reviewer): "Génération automatique de codes adaptatifs", University of Strasbourg, September 2019
    - PhD of Gauthier Sornet (reviewer): "Parallélisme des calculs numériques appliqué aux géosciences", University of Orléans, September 2019
    - PhD of Youenn Lebras (president): "Code optimization based on source to source transformations using profile guided metrics", University of Paris Saclay, July 2019
    - PhD of Filip Arvid Jakobson (reviewer): "Static Analysis for BSPlib programs", University of Orléans, June 2019
    - PhD of Fotis Nicolaidis (president): "TROMOS: a SDK for virtual storage systems", University of Paris Saclay, May 2019
- Raymond Namyst was member of the following committees:
    - PhD of Benjamin Lorendeau (president): "Improving performance of a CFD code with unstructured meshes through multi level parallelism", University of Bordeaux, December 2019
    - PhD of Georgious Christodoulis (president): "Adapting a HPC runtime system to FPGAs", University of Grenoble, December 2019

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Samuel Thibault : Organization of a meet-a-researcher day for ENS Lyon, December 2019

10.3.2. Interventions

- Emmanuelle Saillard, Raymond Namyst: Fête de la Science, Inria, October 2019.

- Emmanuelle Saillard: Printemps de la mixité, Inria, April 2019.

- Emmanuelle Saillard, Sabrina Duthil: Forum des métiers, Lycée des graves, April 2019.

- Emmanuelle Saillard: Moi Informaticienne - Moi Mathématicienne, University of Bordeaux, April 2019.

- Olivier Aumage, Nathalie Furmento, Emmanuelle Saillard, Adrien Cassagne: Welcoming ENS-Lyon undergraduate students, Inria, December 2019.

- Olivier Aumage, Marie-Christine Counilh, Emmanuelle Saillard, Kun He: Welcoming Schoolchildren, Inria, December 2019.

10.3.3. Creation of media or tools for science outreach

- Pierre-André Wacrenier and Raymond Namyst have developed a software platform named Easy-PAP to provide students with an easy-to-use programming environment to quickly learn parallel programming (using Pthreads, OpenMP, OpenCL and MPI). The platform has a nice graphical interface which makes it suitable for showing the benefits of High Performance Computing to a broad audience. More information on the web site: https://gforgeron.gitlab.io/easypap/

TADAAM Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Brice GOGLIN and Emmanuel JEANNOT organized (with Didem UNAT from Ko c University, Turkey), PADAL 2019 (Fifth Workshop on Programming Abstractions for Data Locality) in Bordeaux (workshop by invitation): 25 participants from 10 different countries.
- François PELLEGRINI was, along with Nataliia BIELOVA (from Inria team PRIVATICS), the co-chair of this year's jury of the CNIL-Inria European prize awarded to research scientific papers on the subject of data protection and privacy.

10.1.1.2. Member of the steering committee

- Emmanuel JEANNOT is member of the steering committee of Euro-Par and the Cluster international conference.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Brice GOGLIN is the *Architecture & Networks* area co-chair of SuperComputing 2020.
- Emmanuel JEANNOT is the track program chair of Cluster 2020 (area: application, algorithms, and libraries)
- Emmanuel JEANNOT was the program chair of the COLOC workshop (collocated with Euro-Par).
- Emmanuel JEANNOT was the program chair of the RADR workshop (collocated with IPDPS).
- François PELLEGRINI was a co-chair (along with Roberto DI COSMO) of the workshop on *Software and Open Science: issues and opportunities*, National days on Open science (JNSO 2019), Paris (https://jnso2019.sciencesconf.org/resource/page/id/2).

10.1.2.2. Member of Conference Program Committees

- Alexandre DENIS was a member of the program committee of CCGrid 2019.
- Brice GOGLIN was a member of the program committee of ICPP 2019, EuroMPI 2019, HotInterconnects 26, ROME 2019, ROSS 2019, RADR 2019.
- Emmanuel JEANNOT was member of the program committee of SuperComputing 2019, Euro-MPI 2019, ROSS 2019, Heteropar 2019.
- Guillaume MERCIER was a member of the programm committee of CCGrid 2019 and EuroMPI 2019.
- Guillaume PALLEZ was a member of the program committee of SC 2019 (Tutorials), ICPP 2019, IPDPS 2020, ICA3PP 2019, PMBS 2019.
- François PELLEGRINI was a member of the program committee of ENISA's "EU Privacy Forum".

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Emmanuel JEANNOT is associate editor of the International Journal of Parallel, Emergent & Distributed Systems (IJPEDS).

10.1.3.2. Reviewer - Reviewing Activities

- Emmanuel JEANNOT was a reviewer for JPDC, Parallel Computing, Transaction on Computers.
- Guillaume MERCIER was a reviewer for IEEE Transactions on Computers and for Cluster Computing.
- François PELLEGRINI was a reviewer for journal Terminal.

10.1.4. Invited Talks

- Emmanuel JEANNOT was invited to the panel *Heterogeneous Computing for Energy Efficiency* of 10th International Green and Sustainable Computing Conference (Alexandia VA, USA, octobre 2019, https://www.igscc.org/copy-of-schedule).
- Emmanuel JEANNOT was invited to the panel *Resilience in High Performance Computing* to the HiPEAC event (at Bilbao Spain, October 2019, https://www.hipeac.net/csw/2019/bilbao/#/schedule/).
- Guillaume MERCIER was invited to make a presentation at the PADAL workshop 2019.
- Guillaume PALLEZ was invited to give a talk at the Royal Society of London, UK, as a part of the event *Numerical algorithms for high-performance computational science* [11] (https://royalsociety.org/science-events-and-lectures/2019/04/high-performance-computing/).
- François PELLEGRINI was invited to deliver a common talk with Emmanuel NETTER, "*Is code law?*", at the Symposium of the Agorantic research federation, University of Avignon (https://agorantic.univ-avignon.fr/symposium/symposium-agorantic-28-janvier-2019/).

10.1.5. Scientific Expertise

- Emmanuel JEANNOT was a member of the hiring committee of an Inria junior researcher position at Nancy and at the National Level.
- Guillaume PALLEZ is an elected member of the Inria evaluation committee.
- François PELLEGRINI is co-chair (along with Roberto DI COSMO) of the workgroup on Free software of the Permanent Secretariat for Open Science (SPSO) of the French Ministry of Higher Education (MENESR).
- François PELLEGRINI was heard in an expert panel commissioned by the *Information mission on digital identity* of the French *Assemblée nationale*, chaired by Mrs Marietta KARAMANLI, assisted by Mrs Paula FORTEZA and Christine HENNION.

10.1.6. Research Administration

- Alexandre DENIS is head of the Inria Bordeaux CUMI-R (IT users committee).
- Brice GOGLIN and Guillaume MERCIER are elected members of the Inria Bordeaux center committee.
- Emmanuel JEANNOT is deputy head of science of the Inria Bordeaux research center.
- Emmanuel JEANNOT is member of the Inria evaluation committee
- Emmanuel JEANNOT is member of LaBRI scientific council and head of the Satanas team.
- Guillaume PALLEZ is a worker representative at the Prevention, Health, Security committee (CHSCT) for the Inria center of Bordeaux.

10.1.7. Standardization Activities

TADAAM attended the MPI Forum meetings on behalf of Inria (where the MPI standard for communication in parallel applications is developed and maintained). Guillaume MERCIER leads the *Hardware Topologies* working group. Part of the HSPLIT proposal was discussed and read at the last physical meeting in December 2019 in Albuquerque and has been approved to enter the voting process for an eventual inclusion in the next revision (4.0) of the MPI standard. This voting process will take place in the first semester of 2020 and the release of the 4.0 revision is expected for the end of 2020. Guillaume MERCIER is also the chair of the standard chapter committee *Groups, Contexts, Communicators, Caching* and member of several other chapter committees.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Members of the TADAAM project gave hundreds of hours of teaching at Université de Bordeaux and the Bordeaux INP engineering school, covering a wide range of topics from basic use of computers, introduction to algorithmics and C programming to advanced topics such as probabilities and statistics, scheduling, computer architecture, operating systems, parallel programming and high-performance runtime systems, as well as software law and personal data.

- Brice GOGLIN gave courses about Operating Systems to teachers as part of the *Diplôme Inter Universitaire* to prepare them for teaching the new Computer Science track in high-school.

- François PELLEGRINI did a training session on "*Information science, digital technologies and law*" for the continuous education of magistrates, École nationale de la magistrature (National School for Magistrates), Paris.

- François PELLEGRINI did two training sessions on "*Strategic issues of information technologies*" and "*Personal data law*" to a group of administration heads and civil society activists of several French-speaking west-African countries, in the context of FFGI 2019 at Ouagadougou, Burkina Faso.

10.2.2. Supervision

PhD: Benjamin LORENDEAU, Amélioration des performances via un parallélisme multi-niveaux sur un code CFD en maillages non structurés. Defense at Université de Bordeaux on December 16th. Advisors : Yvan FOURNIER and Emmanuel JEANNOT.

PhD in progress: Valentin Honoré, Partitioning Strategies for high throughput Applications, started in November 2017. Advisors: Guillaume PALLEZ and Brice GOGLIN.

PhD in progress: Andrès RUBIO, Management on heterogeneous and non-volatile memories, started in October 2018. Advisor: Brice GOGLIN.

PhD in progress: Nicolas VIDAL, IO scheduling strategies, started in October 2018. Advisors: Guillaume PALLEZ and Emmanuel JEANNOT.

PhD started: Philippe SWARTVAGHER, Interactions at large scale between high performance communication libraries and task-based runtime, started in October 2019. Advisors: Alexandre DENIS and Emmanuel JEANNOT.

PhD started: Florian REYNIER, Task-based communication progression, started in January 2019. Advisors: Alexandre DENIS and Emmanuel JEANNOT.

PhD started: Pierre FERENBACH, The legal regime of video games, started in January 2019. Advisors: Xavier DAVERAT and François PELLEGRINI.

Master: Léa CHEVALIER, M2 student at Université Paris Nanterre supervised by François PELLEGRINI, won the Disney–Microsoft–Orange–TF1 prize on Media Law for her master thesis on "*Artistic creations generated by automated processing: are they works like others?*".

10.2.3. Juries

Emmanuel JEANNOT was member of the Ph.D defense jury of:

- Hugo BRUNIE, U. Bordeaux (Member);
- Jean-Baptiste KECK, U. Grenoble Alpes (Reviewer);
- Hamza DEROUI, Insa Rennes and U. Rennes (Reviewer);
- Arthur LOUSSERT, U. Bordeaux (Member).

FrançoisPELLEGRINI was member of the Ph.D defense jury of:

- Maximilien LANNA, U. Paris II Panthéon Assas (Member).

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Brice GOGLIN is in charge of the diffusion of the scientific culture for the Inria Research Centre of Bordeaux. He organized several popularization activities involving colleagues.

10.3.2. Articles and contents

- Guillaume PALLEZ wrote a blog article for *Binaire* on autonomous vehicles [37].
- François PELLEGRINI was interviewed on the subject of "*Resisting algorithmic governance*" (cover page), Expertises droit/technologies/prospectives, nr 443, Feb. 2019 (https://www.expertises.info/#anciens-numeros).

10.3.3. Interventions

- Brice GOGLIN is the sponsor (*parrain*) of the *Edouard Vaillant* middle school (Bordeaux) for their scientific projects with the fondation *La main à la pâte*.
- Guillaume PALLEZ, Brice GOGLIN, Valentin HONORÉ, Philippe SWARTVAGHER and Nicolas VIDAL gave seminars and hands-on session about computer science to schools attending *Fete de la Science*, Oct. 2019.
- François PELLEGRINI participated in the round table "*GDPR and cyber-security*" during the OpenS'IAE event, Pau.
- François PELLEGRINI participated in the rountable on "*Legal aspects, GDPR and anonymization technologies*" during the annual congress of *Société informatique de France* (SIF), Bordeaux.
- François PELLEGRINI gave a conference on the security of personal data during the *Mars@Hack* event, in Mont-de-Marsan.
- François PELLEGRINI participated in the round table "*Is our legal framework IA-compatible?*" during the NAIA (*Nouvelle-Aquitaine Intelligence Artificielle*) event, Bordeaux.
- François PELLEGRINI participated in the round table "*What alternatives and what regulations in the GAFAM era?*" during the second edition of the *Rencontres Culture:Tech*, Assemblée nationale, Paris.
- François PELLEGRINI gave a conference on "*Freedom in the digital age*" to students of first and second year of all departments at ENS Cachan (250 people).
- François PELLEGRINI participated in a round table on "*The future of choice*" in the context of the "de-inauguration" of the exhibition textitUnder influence, the science of choice at Espace Pierre-Gilles de Gennes (ESPGG), Paris.
- François PELLEGRINI answered the public at the movie theater Utopia Bordeaux after the display of the movie *Meeting Snowden*.
- François PELLEGRINI gave a public conference on "*How does personal data processing interfere with our privacy?*" during the *IA Pau* conference, Pau.

10.3.4. Internal action

- François PELLEGRINI participated in a round table on "*Digital security: technical, ethical and legal aspects*", Inria scientific days 2019, Lyon (https://project.inria.fr/journeesscientifiques2019/).

10.3.5. Creation of media or tools for science outreach

- Brice GOGLIN was involved in the building of the MOOC *Sciences Numériques et Technologie* which focus at bringing basics about computer science to high-school teachers and general audience. More than 18 000 people registered to the course.
- François PELLEGRINI is one of the 14 people appearing in the documentary "*LOL: Logiciel libre, une affaire sérieuse*" ("LOL: Free software, a serious matter").

<p align="center" style="color:red">TRIBE Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

- Aline C. Viana is **Publicity co-chair** of ESWN 2020; was **Student Travel Grant co-chair** of IEEE Infocom 2019;
- **Emmanuel Baccelli** was co-chair of the RIOT Summit'19.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Aline C. Viana is **TPC co-chair** of Shadow Algotel/Cores 2020; This will be the first time a shadow TPC will be organized for these two French conferences. A shadow TPC aims at providing an educational experience for young PhD graduates, post docs, and junior researchers by simulating a TPC meeting entitled to discuss some papers submitted to Algotel and Cores 2020.

9.1.2.2. Member of the Conference Program Committees

- Aline C. Viana is TPC member of Algotal 2020;

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Aline C. Viana is an Editorial Board member of Ad Hoc Networks, Elsevier journal since Nov 2029; Urban Computing Spring book series (http://www.springer.com/series/15552), since Feb. 2018; an Associate Editor of ACM SIGCOMM Computer Communication Review (ACM CCR), since May 2014; an Editorial Board member of Wireless Communications and Mobile Computing Open Access Journal of John Wiley&Sons and Hindawi since 2016.

9.1.3.2. Reviewer - Reviewing Activities

- **Aline C. Viana** reviewed papers for ACM SIGCOMM CCR Journal, IEEE Transaction on Mobile Computing journal, Elsevier Pervasive and Mobile Computing Journal, and Computer Communication Elsevier Journal.
- **Emmanuel Baccelli** reviewed papers for IEEE IoT Journal, IETF Routing Directory, IFIP/IEEE PEMWN.
- **Cedric Adjih** was a reviewer for ACM SIGCOMM CCR Journal.

9.1.4. Invited Talks

- **Aline C. Viana** was invited to give a seminar at (1) the GDR RSD and ASF Winter School, Pleynet, France, in Feb. 2019; (2) the AGRANDA symposium in Salta, Argentina in Sep. 2019; (3) at IFIP TMA 2019 Expert Summit, https://tma.ifip.org/2019/tma-experts/.
- **Emmanuel Baccelli** was invited to give talks at the French Ministry of Defence (Innovation Defence Lab), at the Berlin Innovation Agency Smart Cities Meetup, and at Eclipse IoT Day.

9.1.5. Standardization

1. **Emmanuel Baccelli and Cedric Adjih** have participated at several working groups at IETF during 2019.

2. **Cedric Adjih** has participated at all IETF Hackathons in 2019 (IETF 104, IETF 105, IETF 106), along with **Oumaima Attia**; they were major contributors to

   – LPWAN Hackathon on the SCHC protocol (IPv6 compression for IoT networks), see: https://github.com/openschc/openschc

   – NWCRG Hackathon on the SWIF-codec, a sliding-window forward-error correction codec, see: https://github.com/irtf-nwcrg/swif-codec

3. **Emmanuel Baccelli** has participated at several IETF hackathons during 2019.

9.1.6. Scientific Expertise

- **Aline C. Viana** served as (1) Remote evaluator of the *ERC's Starting Grant 2019*; (2) as member of *4 PhD defense committees* (2 as reviewer and 2 as examiner); (3) as examiner in *4 PhD mid-term committees* in 2019.

- **Emmanuel Baccelli** served as reviewer for 1 PhD defense committee in 2019.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- **Aline C. Viana** gave talks/seminars at conferences and workshops, on subjects related to human behavior analysis: (1) the GDR RSD and ASF Winter School, Pleynet, France, in Feb. 2019 (https://sites.google.com/site/rsdwinterschool/last-editions/asf-winter-school-2019); (2) the AGRANDA symposium in Salta, Argentina in Sep. 2019 (http://48jaiio.sadio.org.ar/simposios/AGRANDA); (3) at IFIP TMA 2019 Expert Summit, in Jun 2019 (https://tma.ifip.org/2019/tma-experts/).

- Master : **Emmanuel Baccelli**, "IoT & Security", summer semester seminar, Freie Universitaet Berlin.

- Master : **Emmanuel Baccelli**, "IoT & Security", winter semester seminar, Freie Universitaet Berlin.

- Master : **Emmanuel Baccelli**, "Operating Systems for Small Connected Devices in the Internet of Things", cours magistral, Formation PESTO Corps des Mines, Telecom ParisTech, Paris France

- Engineering School: Cédric Adjih, "Internet of Thing", 3h practical courses, Telecom SudParis

- Engineering School: Cédric Adjih, "Internet of Thing", 9h practical courses, ENSEA

9.2.2. Supervision

- PhD in progress: Licia Amichi, "Identifying and profiling novelty-seeking behavior in human mobilityModelling exploration factor of human beings", since Oct. 2018. Advisor: Aline C. Viana

- PhD in progress: Lucas Santos, "Investigating causalities in habits of human visits", since May 2018. Advisor: Aline C. Viana and Pedro Olmo

- PhD in progress: Douglas Teixeira, "Deciphering Predictability Limits in Human Mobility", since April 2018. Advisor: Aline C. Viana and Jussara Almeida.

- PhD in progress: Rafael Costa, "Human-enhanced forwarding strategies for Device-to-Device (D2D) communication", since May 2017. Advisor: Aline C. Viana and Leobino Sampaio.

- PhD in progress: Diego Madriaga, "Short-term Time Series Analysis and Prediction for Anticipatory Networking", since Jan 2019. Advisor: Aline C. Viana and Javier Bustos.

- PhD in progress: Anne Josiane Kouam Djuigne, "Detection of bypass frauds in cellular network datasets", since Nov 2019. Advisor: Aline C. Viana and Alain Tchana.

- PhD in progress: Hirah Malik, "Efficient COding of Meta-information in Information-CEntric NEtworks", since Oct. 2017. Advisors: C. Adjih, Michel Kieffer, and Claudio Weidmann

- PhD in progress: Iman Hmedoush, "Connection protocols for the 5G IoT", since Oct. 2018. Advisors: C. Adjih and Paul Mühlethaler.

9.2.3. Juries

- **Reviewer for PhD thesis committee:** Aline C. Viana was reviewer for the following PhDs: R. Teles, Industrial IoT (Univ. de Strasbourg, fin 2019). Nadjib Achir was was reviewer for the following PhDs: M. Rautu, Déploiement temporaire d'une infrastructure de communication à base de drones (Univ. de Toulouse, octobre 2019).

- **Examiner for PhD thesis committee:** C. Adjih was examiner for the committees of the following PhDs: Safan ALWAN (UPEC, LSSI, Dev. 2019); Aline C. Viana was examiner for the committees of the following PhDs: H. Mazouzi, Algorithms for Tasks Offloading on Multiple Mobile Edge Servers (Univ. Paris 13, Nov 2019); J. Loudet, Distributed and Privacy-Preserving Personal Queries on Personal Clouds (Univ. de Versailles/PETRUS Inria, Oct 2019); J. Munoz, km-scale Industrial Networking (UPMC/EVA Inria, Mar. 2019); A. Boubrima, Deployment and Scheduling of Wireless Sensor Networks for Air Pollution Monitoring (INSA-Lyon/AGORA Inria, Mar. 2019).

- **Examiner for PhD mid-term committee:** Aline C. Viana was examiner for the committees in the following mid-term juries: J. Kamal, Détection d'anomalies comportementales pour les systèmes de transport intelligents et coopératifs, (TPT, Apr. 2019); Y. Du, In-Network Collaborative Mobile Crowd Sensing: a Context-Aware Sensing Group Framework, (UPMC/MIMOVE Inria, Mar. 2019).

- **Examiner for M.Sc. thesis committee:** Aline C. Viana was examiner for the committees in the following M.Sc. jury: W. Z. Xavier, (PUC-MG, Minas Gerais, March 2019).

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

1. **Aline C. Viana** was the President of the Scientific Commission at Inria Saclay, responsible for the selection of candidates for the CORDI-S, Post-Doc and Delegation campaigns.

2. **Aline C. Viana** is the coordinator of the ANR MITIK project to start Feb 2020 and was the international coordinator of the EMBRACE associated team of Inria.

3. Together with the members of the team, **Aline C. Viana** has submitted the short proposal of the new team as well as has presented it at the BCEP and CEP, for validation. TRiBE was officially created in Jun 2019.

4. **Aline C. Viana** is a member of BCEP, evaluating Inria teams in process of creation, discussing main issues related to different scientific commissions, discussing changes in the institution.

5. **Aline C. Viana** is co-Coordinator of the mentoring program for researchers at Inria Saclay (https://project.inria.fr/mentoratscl/). The program goal is the coach of junior researchers by more experienced ones in order to provide them with a complementary perspective for their career, independently of any hierarchical link.

<h2 style="text-align:center; color:red">WHISPER Project-Team</h2>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Gilles Muller is the elected representative member of the system community in the steering committee of the COMPAS conference and also the head of the committee.

10.1.1.2. Member of the Organizing Committees

Gilles Muller was one the co-organizers of the 10th PLOS Workshop that was associated with SOSP.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

Julia Lawall was program chair of the 34th IEEE/ACM International Conference on Automated Software Engineering (ASE 2019) with Darko Marinov (University of Illinois).

10.1.2.2. Member of the Conference Program Committees

- Julia Lawall: ICSE 2020 New Ideas and Emerging Results, 2019 USENIX Annual Technical Conference (USENIX ATC 2019, ERC), Innovations in Software Engineering Conference (ISEC 2020), The 18th Belgium-Netherlands Software Evolution, Workshop (BENEVOL 2019), 45th International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM 2019), ACM SIGPLAN Workshop on Partial Evaluation and Program Manipulation (PEPM)
- Gilles Muller, Usenix ATC 2019, SOSP 2019, Supercomputing - system track 2019
- Pierre-Évariste Dagand: ICFP 2019, PLOS 2019

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Julia Lawall: Science of Computer Programming

10.1.3.2. Reviewer - Reviewing Activities

- Julia Lawall: IEEE Transactions on Software Engineering
- Pierre-Évariste Dagand: Journal of Functional Programming

10.1.4. Invited Talks

- Julia Lawall: Automation in the Maintenance of the Linux Kernel The Coccinelle Experience. Collège de France, February 6.
- Julia Lawall: Coccinelle: 10 Years of Automated Evolution in the Linux Kernel, keynote Linaro Connect conference, September 27.
- Julia Lawall: 10 Years of Automated Evolution in the Linux Kernel, keynote MASCOTS conference, October 23.
- Julia Lawall: Fast and Precise Retrieval of Forward and Back Porting Information for Linux Device Drivers. Lund University, Tsinghua University, University of Illinois, National University of Singapore.
- Julia Lawall: Julia's adventures with Why3. CNAM.

- Lucas Serrano: SPINFER: Semantic patch inference for the Linux kernel. Singapore Management University.
- Gilles Muller: *Research problems in thread scheduling for multicore general purpose operating systems*, WOS Workshop (Rennes), University of Utah, University of New South Wales, University of Sydney, ENS Lyon.
- Pierre-Évariste Dagand: *Programming with dependent types*, Collège de France.

10.1.5. Scientific Expertise

Julia Lawall, Gilles Muller: Discussion with Starburst as part of their survey of sovereign operating systems (March 19, 2019).

10.1.6. Research Administration

- Gilles Muller: Member of a hiring committee for a Professor Position at ENS Lyon.
- Gilles Muller: Elected member of IFIP WG 10.4 (Dependability),
- Bertil Folliot: Elected member of the IFIP WG10.3 working group (Concurrent systems)
- Julia Lawall: Founding member of IFIP WG 2.11 (Program Generation),
- Pierre-Évariste Dagand: Member of a hiring committee for a "Professeur Assistant d'exercice incomplet en Informatique" at École Polytechnique

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Professional Licence: Bertil Folliot, Programmation C, L2, SU, France
- Professional Licence: Bertil Folliot, Lab projects, L2, SU, France
- Licence: Pierre-Évariste Dagand, INF311: Introduction to Programming (40h), L1, École Polytechnique, France
- Licence: Pierre-Évariste Dagand, CSE205: Computer Architecture and Operating Systems (27h), Bachelor, École Polytechnique, France
- Master: Pierre-Évariste Dagand, MPRI 2-4.4: Dependently-typed programming (12h), M2, MPRI, France
- Master: Pierre-Évariste Dagand, INF559: Computer Architecture and Operating Systems (18h), M1, École Polytechnique, France

10.2.2. Supervision

- PhD in progress : Cédric Courtaud, CIFRE Thalès, 2016-2019 (defense January 28 2020), Gilles Muller, Julien Sopéna (Delys).
- PhD in progress : Redha Gouicem, 2016-2020, Gilles Muller, Julien Sopéna (Delys).
- PhD in progress : Yoann Ghigoff, 2019-2022, Gilles Muller, Julien Sopéna (Delys), Kahina Lazri (Orange Labs).
- PhD in progress : Darius Mercadier, 2017-2020, Pierre-Évariste Dagand, Gilles Muller.
- PhD in progress : Lucas Serrano, 2017-2020, Julia Lawall.
- PhD in progress : Pierre Nigron, 2019-2021, Pierre-Évariste Dagand, Julia Lawall.

10.2.3. Juries

- Julia Lawall: PhD jury of Jesper Öqvists (University of Lund, reporter), January 18, 2019.
- Julia Lawall: PhD jury of David Come (Onera, reporter), January 25, 2019.
- Julia Lawall: PhD jury of Jason Lecerf (University of Lille, reporter), November 26, 2019.

- Julia Lawall: HDR jury of Nic Volanschi (University of Bordeaux, president), November 29, 2019.
- Gilles Muller: PhD jury of Damien Carver (Sorbonne University, president), May 17, 2019.
- Pierre-Évariste Dagand: PhD jury of Kenji Maillard (University PSL, examiner), November 25, 2019.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Julia Lawall: Chair of the Commission des Emplois Scientifiques, with Mazyar Mirrahimi.

10.3.2. Education

- Julia Lawall: Coccinelle: Practical program transformation for the Linux kernel. Ecole de Jeunes Chercheurs en Programmation.

10.3.3. Interventions

- Julia Lawall: Systèmes d'exploitation. Girls Can Code.

<p align="center" style="color:red">WIDE Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Member of the Organizing Committees

François Taïani and Erwan Le Merrer served as Co-Organizer of the 9th Inria/Interdigtal Workshop On Systems (WOS9), Rennes, France, December 2019.

François Taïani served as Posters and Demos Co-Chair of the 38th IEEE International Symposium on Reliable Distributed Systems (SRDS 2019), Lyon, France, October 2019.

Erwan Le Merrer served as Co-Organizer of the "Atelier sur les algorithmes en boite-noire", Lyon, France, December 2019.

9.1.2. Scientific Events Selection

9.1.2.1. Chair of Conference Program Committees

François Taïani served as PC Co-Chair of the 3rd Workshop on Scalable and Resilient Infrastructures for Distributed Ledgers (SERIAL'19), collocated with Middleware 2019, Davis, CA, USA, December 2019.

François Taïani served as Co-Chair of the Shadow PC of the European Conference on Computer Systems (EuroSys 2019), Dresden, Germany, March 2019.

Erwan Le Merrer served as Co-Chair of the "Rencontres Francophones sur les Aspects Algorithmiques des Télécommunications" (Algotel 2019), France, June 2019.

9.1.2.2. Member of the Conference Program Committees

François Taïani served on the PC of the Conférence d'informatique en Parallélisme, Architecture et Système (COMPAS2019), Anglet, France, June 2019.

François Taïani served on the PC of the 18th Workshop on Adaptive and Reflexive Middleware (ARM'19@MW), co-located with Middleware 2019, Davis, CA, USA, December 2019.

François Taïani served on the PC of the 49th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2019), Portaland, OR, USA, June 2019.

François Taïani served on the PC of the International Conference on Blockchain Economics, Security and Protocols (Tokenomics 2019), Paris, France, May 2019.

Davide Frey served on the PC of the 5th Workshop on Planetary-Scale Distributed Systems (W-PSDS), co-located with SRDS 2019, Lyon, France, October 2019.

Davide Frey served on the PC of the 13th ACM International Conference on Distributed and Event-Based Systems (DEBS), Darmstadt, Germany, June 2019.

Davide Frey served on the PC of the 19th International Conference on Distributed Applications and Interoperable Systems (DAIS), Copenhagen, Denmark, June 2019.

George Giakkoupis served on the PC of the 31st ACM Symposium on Parallelism in Algorithms and Architectures (SPAA), Phoenix, AZ, USA, June 22–24, 2019.

George Giakkoupis served on the PC of the 33rd International Symposium on Distributed Computing (DISC), Budapest, Hungary, Oct. 14–18, 2019.

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

François Taïani was a reviewer for IEEE Transactions on Knowledge and Data Engineering (TKDE).

Davide Frey was a reviewer for the International Journal of Computer and Telecommunications Networking (COMNET).

Davide Frey was a reviewer for Peer-to-Peer Networking and Applications (PPNA).

Davide Frey was a reviewer for the ARIMA Journal.

George Giakkoupis was a reviewer for Journal of the ACM (JACM).

George Giakkoupis was a reviewer for Journal of Parallel and Distributed Computing (JPDC).

George Giakkoupis was a reviewer for ACM Transactions on Parallel Computing (TOPC).

George Giakkoupis was a reviewer for Distributed Computing (DIST).

9.1.4. Collaborative Projects

Davide Frey was a reviewer for the Agence Nationale de Recherche (ANR).

9.1.5. Invited Talks

François Taïani. Pleiades: Distributed Structural Invariants at Scale. 4th GDR RSD and ASF Winter School on Distributed Systems and Networks 2019, Pleynet, Sept Laux, France, 6 February 2019.

François Taïani. Pleiades: Distributed Structural Invariants at Scale. Lancaster University, Lancaster, UK, 23 May 2019.

Erwan Le Merrer. Tweaking neural models: watermarking and tamperproofing them. EPFL-Inria workshop, EPFL, Lausanne, 30 January 2019.

François Taïani. How to Be a Terrible Higher Education Teacher in 7 Easy Steps. IRISA Annual D1 Departmental Seminar, IRISA, Rennes, 29 November 2019.

9.1.6. Leadership within the Scientific Community

Michel Raynal has been Adjunct Professor at the Polytechnic University of Hong Kong since 2013.

Michel Raynal has been a member of the Executive board of the SIF (Société d'Informatique Française) since 2013.

Michel Raynal is European representative at the IEEE Technical Committee on distributed computing.

François Taïani has been a member of the Gilles Kahn PhD Award in Computer Science, from Société Informatique de France (SIF) since 2018.

9.1.7. Research Administration

Davide Frey is Correspondant Scientifique Europe at the DPEI for Inria Rennes.

Davide Frey is an associate member of the COST-GTRI of Inria.

François Taïani is a Career Advice Person, (*Référent conseil-parcours professionel chercheurs*) for IRISA/Inria Rennes Bretagne Atlantique since 2019.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: Florestan De Moor, Programmation Dirigée par la Syntaxe, 22h, M1-SIF, Université de Rennes 1, France

Engineering School: François Taïani, Synchronization and Parallel Programming, 62h, 2nd year of Engineering School (M1), ESIR / Univ. Rennes I, France.

Engineering School: François Taïani, Distributed Systems, 24h, 3rd year of Engineering School (M2), ESIR / Univ. Rennes I, France.

Engineering School: François Taïani, Introduction to Operating Systems, 24h, 1st year of Engineering School (L3), ESIR / Univ. Rennes I, France.

Bacherlor: François Taïani, Distributed Algorithms, 12h, L3 Parcours SI, ENS Rennes, France.

Master: Davide Frey, Programming Technologies for the Cloud, 28h, M2, Univ. Rennes I, France.

Master: Davide Frey, Scalable Distributed Systems, 10 hours, M1, EIT/ICT Labs Master School, Univ. Rennes I, France.

Master: Davide Frey, Big-Data Storage and Processing Infrastructures, 10 hours, M2-SIF, Univ. Rennes I, France.

Master: Davide Frey, Cloud Computing, 6 hours, M2-MIAGE, Univ. Rennes I, France.

Master: Davide Frey, Distributed Systems, 12 hours, ENSAI, France.

Master: Davide Frey, Apprentice Tutoring, 8 ETD hours, M2 Alternance Univ. Rennes I, France.

Master: Quentin Dufour and Davide Frey, 12 ETD hours, M1 ISTIC, Univ. Rennes I, France.

Master / PhD: Davide Frey, Distributed Computing and Blockchain, 15 hours, UM6P, Morocco.

Master: Erwan Le Merrer, Projet , 36 ETD hours, M1 ISTIC, Univ. Rennes I, France.

Master: Erwan Le Merrer, Network Science, 12 hours, M2 ESIR, Univ. Rennes I, France.

Master: Quentin Dufour and Louison Gitzinger, Cloud, 36 hours, M2 ESIR, Univ. Rennes I, France.

Master: Quentin Dufour, TLC, 18 hours, M2 ISTIC, Univ. Rennes I, France

Master: George Giakkoupis, Systèmes Répartis, 9 hours, ENSAI Rennes, France.

9.2.2. Supervision

PhD: Adrien Luxey, "E-squads: A novel paradigm to build privacy-preserving ubiquitous applications" [13], University of Rennes 1, 29th November 2019, David Bromberg.

PhD in progress: Quentin Dufour, BBDA - Browser Based Data Analytics, January 2018, David Bromberg and Davide Frey.

PhD in progress: Amaury Bouchra Pilet, Robust and Lightweight Overlay Management for Decentralized Learning, University of Rennes 1, September 2018, David Bromberg and Davide Frey.

PhD in progress: Loïck Bonniot, Distributed Troubleshooting of Edge-Compute Functions, University of Rennes 1, François Taïani and Christoph Neumann (Interdigital, CIFRE).

PhD in progress: Alejandro Gomez Boix, Distributed counter-measure against browser fingerprinting, Inria, Davide Frey and David Bromberg.

PhD in progress: Alex Auvolat, Towards probabilistic decentralized systematic design for large-scale privacy-preserving collaborative systems, University of Rennes 1, François Taïani and David Bromberg.

PhD in progress: Hayk Saribekyan, Randomized Algorithms for Distributed Information Dissemination, University of Cambridge, UK, George Giakkoupis and Thomas Sauerwald (U. Cambridge).

HDR: Davide Frey, Epidemic Protocols: From Large Scale to Big Data, University of Rennes 1, 11 Juin 2019 [12].

9.2.3. Juries

François Taïani was an examiner for Cédric Maigrot's PhD thesis: Détection de fausses informations dans les réseaux sociaux, Université de Rennes 1 (France), 1st April 2019.

François Taïani was a reviewer for João Paulo de Araujo's PhD thesis: A Communication-Efficient Causal Broadcast Publish/Subscribe System, Sorbonne Université, LIP6 (France), 5th April 2019.

François Taïani was an external examiner (reviewer) for Assylbek Sagitzhanuly Jumagaliyev's PhD thesis: A Modeling Language for Multi-tenant Data Architecture Evolution in Cloud Applications, Lancaster University (UK), 23rd May 2019.

François Taïani was an examiner for Gilles Tredan's HDR: Capturing Binary Graphs, Université de Toulouse 3 (France), 21st June 2019.

François Taïani was an examiner for Nathanaël Cheriere's PhD thesis: Towards Malleable Distributed Storage Systems: from Models to Practice, ENS Rennes, 5th November 2019.

François Taïani was an examiner for The Anh Pham's PhD thesis: Efficient state-space exploration for asynchronous distributed programs, ENS Rennes, 6th December 2019.

François Taïani was an examiner for Oscar Luis Vera Perez's PhD thesis: Dynamic program analysis for suggesting test improvements to developers, University of Rennes 1, 17th December 2019.

George Giakkoupis was an external reviewer for Suman Sourav's PhD thesis: Latency, Conductance, and the Role of Connectivity in Graph Problems, National University of Singapore, 11 November 2019.

9.3. Popularization

Algorithm Watch wrote an article about a recent work involving Erwan Le Merrer, concernant remote transparency. The article is called "Explainable AI doesn't work for online services – now there's proof". Avaiable at https://algorithmwatch.org/en/story/explainable-ai-doesnt-work-for-online-services-now-theres-proof/.

<p style="text-align: center; color: red;">**ALICE Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

The team has organized the "2nd Workshop of the Grand-Est in Computer Graphics and Virtual Reality" (50 participants).

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

Members of the team were IPC members for SPM and ISVC.

10.1.2.2. Reviewer

Members of the team were reviewers for Eurographics, SIGGRAPH, SIGGRAPH Asia, ISVC, Pacific Graphics, and SPM.

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

Members of the team were reviewers for Computer Aided Design (CAD), Journal of Computational Physics (Elsevier), Transactions on Visualization and Computer Graphics (IEEE), Transactions on Graphics (ACM), and Computers & Graphics (Elsevier).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : Dobrina Boltcheva, Computer Graphics, 30h, 3A, IUT Saint-Dié-des-Vosges

Licence : Dobrina Boltcheva, Advanced Object Oriented Programming & UML, 60h, 2A, IUT SaintDié-des-Vosges

Licence : Dobrina Boltcheva, Advanced algorithmics, 50h, 2A, IUT Saint-Dié-des-Vosges

Licence : Dobrina Boltcheva, Image Processing, 30h, 2A, IUT Saint-Dié-des-Vosges

Licence : Dobrina Boltcheva, UML Modeling, 20h, 1A, IUT Saint-Dié-des-Vosges

Licence : Dobrina Boltcheva, Algorithmics, 30h, 3A, PolyTech Nancy

Licence : Dobrina Boltcheva, Computer Graphics, 12h, 5A, PolyTech Nancy

Licence : Dmitry Sokolov, Computer Graphics, 12h, 5A, PolyTech Nancy

Licence : Dmitry Sokolov, C++, 40h, 2A, University of Lorraine

Licence : Dmitry Sokolov, Programming, 30h, 1A, University of Lorraine

Licence : Dmitry Sokolov, Logic, 30h, 3A, University of Lorraine

Master : Dmitry Sokolov, Logic, 22h, M1, University of Lorraine

Master : Dmitry Sokolov, 3D printing, 12h, M2, University of Lorraine

Master : Dmitry Sokolov, Numerical modeling, 12h, M2, University of Lorraine

10.2.2. Supervision

PhD in progress: Justine Basselin, *"Reconstruction of buildings from 3D point clouds"*, since December 2019, Dmitry Sokolov, Nicolas Ray and Hervé Barthélémy.

PhD in progress: François Protais, *"Polycube-dominant meshing"*, since October 2019, Dmitry Sokolov and Franck Ledoux.

10.2.3. Juries

Dmitry Sokolov participated in the PhD jury of Lucas Morlet as an examinator.

10.3. Popularization

Dmitry Sokolov continues to develop TinyRenderer [0] computer graphics lectures. More than 1M views in 2019, 14k GitHub stars in total.

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[0] https://github.com/ssloy/tinyrenderer/wiki

ALMANACH Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- BS organised with Annie Rialland and Catherine Schnedecker the 2019 "Journée de la Société de Linguistique de Paris", dedicated this year to "Corpus, analyses quantitatives et modèles linguistiques" (January 2019)

- DS was the co-chair of the SyntaxFest (Paris, 26-30 August 2019), a one-week event colocating a number of previously independent conferences and workshops on topics ranging from syntax to parsing and treebank development (including the UD workshop), as well as the co-chair of one of these conferences (Treebank and Linguistic Theories, TLT).

- KG was the co-chair of the International Conference on Dependency Linguistics, Depling 2019, another event of the SyntaxFest.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program/Scientific/Reviewing Committees

- BS: Member of the Program, Scientific or Reviewing Committee of the following conferences and workshops: EMNLP-IJCNLP 2019, ACL 2019, NAACL 2019

- LR: Member of the Program, Scientific or Reviewing Committee of the following conferences and workshops: CMLC 2019, eLex 2019, ISA-15, TOTh 2019, LDK 2019, DATeCH 2019, ElPub 2019

- KG: Member of the Program, Scientific or Reviewing Committee of the following conferences and workshops: ACL 2019, SyntaxFest 2019 including Depling and Workshop on Universal Dependencies, Workshop on Multilingual Surface Realization, 2019, CoNLL 2019, EMNLP-IJCNLP 2019, International Conference on Natural Language Generation (INLG) 2019, LAW XIII 2019 (The 13th Linguistic Annotation Workshop), Rencontre des Jeunes Chercheurs en Parole

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- LR: Member of the scientific committe of the French speaking DH journal *Humanités numériques*

- KG: Member of the scientific committe of the *Journal of Linguistics*

10.1.3.2. Reviewer - Reviewing Activities

- BS: Reviewer for *Traitement Automatique des Langues*, *wék^{w}os*

- AC: Reviewer for *Digital Humanities 2020 - Intersections/Carrefours*

10.1.4. Invited Talks

- DS, invited talk, "Faire face au syndrome du Jabberwocky: Analyses morpho-syntaxiques en environnement hostile", at the Societé Linguistique de Paris (SLP) (Janvier 2019)

- BS, "Représentation et exploitation des informations lexicales", CENTAL, Louvain-la-Neuve, Belgium (April 2019)

- BS, "Morphological complexities", joint invited talk (with Géraldine Walther) at ACL 2019's SIGMORPHON workshop, Florence, Italy (July 2019) [15]

- LR, "The TEI as a modeling infrastructure: TEI beyond the TEI realms". Ringvorlesung Digital Humanities, Paderborn, Germany (July 2019).
- LR, "Where is the place of scientific lexicography in science?", Lorentz workshop: The Future of Academic Lexicography, Leiden, The Netherlands (Nov. 2019)
- LR, "Digital transition of SSH", LERU Information and Open Access (INFO) Policy Group meeting, Strasbourg, France (Dec. 2019)
- EVdlC, "Acquisition de connaissances à partir de corpus analysés syntaxiquement" Seminar at Nokia Bell Labs, France (June 2019)
- EVdlC, "Évolutions et pertinence des plongements lexicaux", workshop on "Machine learning, données textuelles et recherche en sciences humaines et sociales", ENS Lyon, France (Nov. 2019)
- Benjamin Muller, "Transfer Learning on an unseen North African Arabic Dialect", Bar Ilan University, Israel (24 Nov 2019)
- Mohamed Khemakhem was invited to the "ELEXIS Observers" event to give a talk [0] about structuring historical dictionaries and the use of GROBID-Dictionaries, Austrian Academy of Sciences, Austria (February 2019)
- KG, "Instant treebanks: Tools and methods to quickly build syntactically annotated corpora from scratch", Workshop "Annotation of non-standard corpora (2019)", University of Bamberg, Germany in September.

10.1.5. Training

- Mohamed Khemakhem chaired and tutored the GROBID-Dictionaries workshop series:
  - ELEXIS workshop - Berlin (March 2019)
  - Atelier de formation CollEx-Persée - Paris (September 2019)
- Following the aforementioned 'Symposium on Naija', a Master Class of one week was organised in June 2019 at the ARCIS institute of the University of Ibadan, Nigeria, on "Crowd-sourcing Web Corpora of Nigerian Languages" taught by KG and Slavomír Čéplö (from the Austrian Academy of Sciences).

10.1.6. Leadership within the Scientific Community

An important aspect of ALMAnaCH's work relates to standardisation initiatives, especially within the ISO TC37 committee on language and terminology. Laurent Romary is the President of this committee and the convenor of its working group TC37/SC4 on lexical resources, within which he and a number of other ALMAnaCH members (Jack Bowers, Mohamed Khemakhem, Benoît Sagot, Éric de La Clergerie) have responsibilities (as project leaders or co-leaders). Most of them are related to the revision as a multi-part standard of ISO 24613 (Lexical Markup Framework, [14]), the first part of which was published in June 2019.

ALMAnaCH members have also played a key role in developing the Standardisation Survival Kit, an online tool hosted by Huma-num which focuses on giving researchers access to standards in a meaningful way by using research scenarios which cover all the domains of the Humanities, from literature to heritage science, including history, social sciences, linguistics, etc. We have published one publications on this topic in 2019 [64], following numerous ones over the last few years.

Other examples of ALMAnaCH's leadership within the scientific community are the following:
- LR: Member of the ELEXIS Interoperability and Sustainability Committee (ISC) — ELEXIS is the European Lexicographic Infrastructure (https://elex.is)
- EVdLC: Chairman of the ACL special interest group SIGPARSE (ended in 2019)
- BS: Member, Deputy Treasurer and Member of the Board of the Société de Linguistique de Paris
- DS: Board member of the French NLP society (Atala, 2017-2020), Vice-President of the Atala and program chair of the "journée d'études".
- DS: Member of the ACL's BIG (Broad Interest Group) Diversity group.
- Mohamed Khemakhem: Member of the DARIAH Working Group "Bibliographical Data"

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[0] http://videolectures.net/elexisobserver2019_khemakhem_dictionaries/

10.1.7. Scientific Expertise

- LR is an advisor for scientific information to Inria's deputy CEO for Science.

10.1.8. Research Administration

- BS is a member of Inria Paris's Scientific Committee ("Comité des Projets") and of its Board ("Bureau du Comité des Projets"), and a member of the International Relations Working Group of Inria's Scientific and Technological Orientation Council (COST-GTRI)
- BS is the Deputy Head (and former Head) of the research strand on Language Resources of the LabEx EFL (Empirical Foundations of Linguistics), and is therefore a deputy member of the Governing Board of the LabEx
- LR is the President of the scientific committee of ABES (Agence Bibliographique de l'Enseignement Supérieur), and a Member of the Text Encoding Initiative board

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: Benoît Sagot (with Emmanuel Dupoux), "Speech and Language Processing", 20h, M2, Master "Mathématiques, Vision, Apprentissage", ENS Paris-Saclay, France
- Master: Loïc Grobol, "Introduction à la fouille de textes", 39h, M1, Université Sorbonne Nouvelle, France
- Master: Loïc Grobol, "Langages de script", 39h, M2, INaLCO, France
- Eq. Master: Clémentine Fourrier, "Module TDLog - Techniques de Developpement Logiciel" (computer science opt-in course in Python), 18h, M1 and M2, École des Ponts ParisTech, France
- Eq. Bachelor second year: Gaël Guibon, "Introduction to Python and Programming" (for business school students and english speakers) 25h, International BBA 2, ESSEC Business School, France
- Master: Alix Chagué, "Humanités Numériques", 18h, M1, Institut d'études culturelles et internationales (IECI), Université Versailles-Saint-Quentin-en-Yvelines, France.
- Master: Alix Chagué, "Introduction à LaTeX", 5h, M1, Institut d'études culturelles et internationales (IECI), Université Versailles-Saint-Quentin-en-Yvelines, France.
- Master: Alix Chagué, "Introduction à Linux", 5h, M1, Institut d'études culturelles et internationales (IECI), Université Versailles-Saint-Quentin-en-Yvelines, France.
- Licence: Pedro Ortiz, "Mathématiques discrètes", 40h, L2, Licence de Sciences et Technologies, Faculté de Sciences et Ingénierie, Sorbonne Université, Paris, France.
- Licence: Mathilde Regnault, "Informatique et industries de la langue", 20h, L2, Licence Sciences du langage, Université Sorbonne nouvelle - Paris 3, Paris, France.

10.2.2. Supervision

PhD in progress: Mohamed Khemakhem, "Structuration automatique de dictionnaires à partir de modèles lexicaux standardisés", September 2016, Paris Diderot, supervised by Laurent Romary

PhD in progress: Loïc Grobol, "Coreference resolution for spoken French", "Université Sorbonne Nouvelle", started in Oct. 2016, supervised by Frédéric Landragin (main superviser), Isabelle Tellier[†] (main superviser), Éric de La Clergerie and Marco Dinarelli

PhD in progress: Jack Bowers, "Technology, description and theory in language documentation: creating a comprehensive body of multi-media resources for Mixtepec-Mixtec using standards, ontology and Cognitive Linguistics", started in Oct. 2016, EPHE, supervised by Laurent Romary

PhD in progress: Axel Herold, "Automatic identification and modeling of etymological information from retro-digitized dictionaries", October 2016, EPHE, Laurent Romary

PhD in progress: Mathilde Regnault, "Annotation et analyse de corpus hétérogènes", "Université Sorbonne Nouvelle", started in Oct. 2017, supervised by Sophie Prévost (main superviser), Isabelle Tellier[†], and Éric de la Clergerie

PhD in progress: Louis Martin, "Text Simplification", June 2018, Facebook & Sorbonne Université ("CIFRE" PhD), supervised by Benoît Sagot and Éric de La Clergerie

PhD in progress: Pedro Ortiz, "Automatic Enrichment of Ancient Dictionaries", October 2018, Sorbonne Université, supervised by Laurent Romary and Benoît Sagot

PhD in progress: Benjamin Muller, "Multi-task learning for text normalisation, parsing and machine translation", October 2018, Sorbonne Université, supervised by Benoît Sagot and Djamé Seddah

PhD in progress: José Carlos Rosales, supervised by Guillaume Wisnewski (Limsi) and Djamé Seddah, October 2018

PhD in progress: Clémentine Fourrier, "Neural approaches to the modelling of phonetic evolution", October 2019, EPHE (Inria fellowship), Benoît Sagot

10.2.3. Juries

- BS: reviewer ("rapporteur") of the PhD committee for Nourredine Alliane at Université Paris 8 on 17th May (Title: "Évaluation des représentations vectorielles de mots"; Supervisor: Gilles Bernard)

- BS: reviewer of the PhD committee for Tamara Álvarez López at Université de Vigo, Spain, on 29th November (Title: "Sentiment analysis in social media contents using natural language processing techniques"; Supervisors: Enrique Costa Montenegro and Milagros Fernández Gavilanes)

- BS: member of the PhD committee for Hazem Al Saied at Université de Lorraine on 20th December (Title: "Analyse automatique par transitions pour l'identification des expressions polylexicales"; Supervisors: Matthieu Constant and Marie Candito)

- LR: Reviewer of the PhD committee for Elina Leblanc, Université de Grenoble Alpes (title: "Bibliothèques numériques enrichies et participatives : utilisateurs, services, interfaces", Supervisors: Elena Pierazzo and Hervé Blanchon)

- EVdlC: Reviewer of the PhD committee for Diana Nicoleta Popa, Université de Grenoble Alpes (title: "Vers des représentations contextualisées de mots", Supervisor: Éric Gaussier)

- KG: reviewer of the PhD committee for Mohammed Galal at the University of Ain Shams, Egypt, on January 8 (Title: "Les constructions exceptives du français et de l'arabe : syntaxe et interface sémantique-syntaxe"; Supervisor: Sylvain Kahane in codirection with Dina El-Kassas)

- KG: President of the PhD committee for Marie-Amélie Botalla at the Sorbonne Nouvelle on May 14 (Title: "Modélisation de la production des énoncés averbaux : le cas des compléments différés", Supervisors: Jeanne-Marie Debaisieux and Sylvain Kahane)

10.3. Popularization

10.3.1. Articles and contents

- BS was interviewed by David Larousserie, from the French daily newspaper Le Monde, about the release of CamemBERT, in October and December 2019. This resulted in an article in the newspaper, accessible here (subscription required).

- LR was interviewed the radio France Culture about the release of CamemBERT, in October 2019. The interview was aired on the radio.

- AC has taken in charge the content management of the Time Us project's research blog since April 2019, which aims at presenting sources, good practices and results used and elaborated by all the project members.

10.3.2. Interventions

- Welcoming of schoolchildren at Inria Paris (half a day with ALMAnaCH members within an one-week-long stay; December 2019)

- Clémentine Fourrier co-organised the Young Women Mathematician Days (Inria Paris edition): 2 days of talks, mathematical animations and speed meetings with women scientists or engineers at the Inria Paris center, for high school girls

- Clémentine Fourrier was a speaker at the ESPCI highschool students summer school, to introduce the different jobs of computer science engineer to high school girls, in research and the industry, and animated an introductory software development workshop in Python over an afternoon

- Alix Chagué was the speaker for 6th workshop organised by the Alumni Association of the École nationale des chartes's Masters (ADEMEC), to introduce the software Transkribus and guidelines for text extraction (March 2019).

10.3.3. Internal action

- BS presented he January 2019 edition of the "demi-heure de science" at Inria Paris, whose target audience is researchers from all Inria Paris teams

- BS presented he June 2019 edition of Inria Paris' "my team in 180 seconds" event, whose target audience is both researchers and non-scientific Inria personnel

- CF presented softwares and good practices (Docker, GitLab and version control, Diverting Gitlab to create a small website) at the Inria developper meetup, whose target audience is both researchers and engineers.

Auctus Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

Jessica was member of the organizing committee of the Young Researchers' Day in Robotics 2019 (Journée Jeunes Chercheurs en Robotique) in Vittel, France the 14th October.

10.1.2. Member of the Conference Program Committees

- Journées Nationales de la Recherche en Robotique (JNRR) 2019. [David Daney, scientific Program Committee member]
- 44ème Congrès de la Sociéte de Biomécanique [Vincent Padois, scientific committee member]
- IROS 2019 (IEEE/RSJ International Conference on Intelligent Robots and Systems) [Vincent Padois, associate editor]
- ICRA 2020 (IEEE/RAS International Conference on Robotics and Automation) [Vincent Padois, associate editor]

10.1.3. Reviewer Activities: conferences

- ICRA 2020 (IEEE International Conference on Robotics and Automation) [Vincent Padois, David Daney, Lucas Joseph]
- IROS 2019 (IEEE/RSJ International Conference on Intelligent Robots and Systems) [David Daney, Vincent Padois, Jessica Colombel]
- ECC 2019 (European Control Conference) [Vincent Padois]
- 44ème Congrès de la Sociéte de Biomécanique [Vincent Padois]
- IEEE International Workshop on Metrology for Aerospace, Torino, June 2019 [Jean-Marc Salotti]
- CableCon 2019 @ 15th IFToMM World Congress, June 30 – July 4, 2019, Krakow, Poland [David Daney]

10.1.4. Reviewing Activities: journal

- ASME Journal of Mechanisms and Robotics [David Daney, Joshua Pickard]
- Mechanism and Machine Theory [David Daney]
- IEEE Robotics and Automation Letters [Vincent Padois, Jessica Colombel]
- IEEE Transactions on Human-Machine Systems [Vincent Padois]
- IEEE Transactions on Robotics [Vincent Padois]
- Acta Astronautica [Jean-Marc Salotti]
- Foresight [Jean-Marc Salotti]
- Behavioural Brain Research [jean-Marc Salotti]
- Computer Aided Geometric Design [Joshua Pickard]

10.1.5. Talks / Invited Talks

- David Daney – "Designing the collaborative robotics cells", Eighth International Congress on Design and Modeling of Mechanical Systems (CMSM'19), March 18-20, 2019 Hammamet, Tunisia.
- David Daney – "Concevoir les cellules de robotique collaborative du futur", Colloque Augmentation de l'Humain, Talence, 28-29 mars 2019

- Vincent Padois – "Sécurité et Robotique collaborative: n'oublions pas la commande!" – États Généraux de la Robotique – 2019/03/07

- Lucas Joseph – "HARRY2: développement d'un contrôleur de robot industriel répondant à des contraintes de sécurité basées sur un critère énergétique" – Journée GDR Robotique "GT3 - GT6": "Conception et contrôle pour la manipulation sûre et flexible" – 2019/09/27– CEA LIST Centre Nano-Innov-Palaiseau

- Vincent Padois – "Quelques problématiques sous-jacentes en Robotique collaborative" – Journées Nationales de la Recherche en Robotique – 2019/10/15

- Nassim Benhabib – "Methodology for designing and controlling a collaborative robotic system to assist and secure an operator's gestures" – Journées Nationales de la robotique Humanoïde) – 2019/11/{25,26} – LAAS, Toulouse

- Lucas Joseph, Vincent Padois – "HARRY2: développement d'un contrôleur de robot industriel répondant à des contraintes de sécurité basées sur un critère énergétique" – Launch of the ANR LabCom MACH4 between Iteca and PPrime – 2019/11/7 – Poitiers, France

- Joshua Pickard – "Appropriate Synthesis of a Crank-Rocker Linkage" World Congress of the International Federation for the Promotion of Mechanism and Machine Science (IFToMM), June 30 - July 4, 2019, Krakow, Poland

- Joshua Pickard – "Redundancy Tubes: Modelling Individual and Group Range-of-Motions Along a Path" 44 ème congres societe de biomecanique 28-30 octobre 2019, Poitiers, France

10.1.6. Leadership within the Scientific Community

- Vincent Padois is, together with Olivier Stasse from LAAS, the co-animator of GT7 "Humanoid Robotics" of the CNRS "Groupement de Recherche en Robotique" (GDR). The role of animator consists in organizing regular workshops in humanoid robotics with the members of the French research community in this domain. It also consists in reporting strategic elements to the GDR in order to better organize the structure of research in Robotics in France.

10.1.7. Scientific Expertise

- Vincent Padois is a reviewer for the 2nd European COVR call.

- Vincent Padois and David Daney are reviewers for the best PhD thesis award of GDR Robotique.

- David Daney is an expert of "Robot Boost" Nouvelle-Aquitain's progam.

- Jean-Marc Salotti and David Daney are official animators of the Humans Systems Interactions AESE DAS (Strategic Activities Domain of the Aerospace Valley Pole), which gathers all regional actors concerned with human factors, human systems interactions, and collaborative robotics mainly in the aerospace sector, but not limited to that domain. At least 2 daily workshops are organized each year for the members of the group in order to focus on a specific issue. Jean-Marc Salotti and David Daney are also solicited to examine regional projects linked to the DAS in order to provide advice and eventually to participate to the labelling process of the pole.

- The Auctus team is involved in the "Aquitaine robotics" cluster, which brings together robotics players in Nouvelle-Aquitaine. David Daney and Jean-Marc Salotti respectively represent Inria and Ensc on the board of directors. David Daney is a member of the executive board. David Daney and Jean-Marc Salotti are respectively president and vice-president of the labelling committee which promotes all robotics projects for the Nouvelle-Aquitaine region.

10.1.8. Research Administration

- Sylvain Pion represents the Auctus team in the CUMI-R (Comité des Utilisateurs des Moyens Informatiques) committee of Inria Bordeaux.

- Jean-Marc Salotti participated to the Inria Committee directed by Clair Poignard and dedicated to the selection of research candidates for delegations, PhD and Postdoctoral positions.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Jean-Marc Salotti, Intelligence Artificielle, 103,5h éqTD, M1, Ecole Nationale Supérieure de Cognitique / Bordeaux INP, France

Master: Jean-Marc Salotti, Facteurs Humains et Ingénierie Cognitique, 15h éqTD, M1, Ecole Nationale Supérieure de Cognitique / Bordeaux INP, France

Master: Jean-Marc Salotti, Interactions Hommes Robots, 15h éqTD, M2, Ecole Nationale Supérieure de Cognitique / Bordeaux INP, France. In this course, all students have practical works involving cobotic systems: programming NAOs and UR3 (Universal Robots) and testing an exoskeleton.

Master: David Daney, Interactions Hommes Robots, 2h éqTD, M2, Ecole Nationale Supérieure de Cognitique / Bordeaux INP, France.

Master: David Daney, Mathématiques pour la robotique, 30h éqTD, M2, Enseirb/Ensc, Bordeaux INP, France.

Master: David Daney, Décision, 7h éqTD, M2, Ecole Nationale Supérieure de Cognitique / Bordeaux INP, France.

Master: Vincent Padois, Literature review - What, Why and How?, 20h éqTD, M2, Enseirb/Ensc, Bordeaux INP, France.

Master: Vincent Padois, Enjeux technologiques de la maintenance aéronautique, 6h éqTD, M1, Enseirb-Matmeca, Bordeaux INP, France.

Master: Vincent Padois, Maintenance du futur - Cours introductif, 2h éqTD, M1, ENSPIMA, Bordeaux INP, France.

Master: Nassim Benhabib, Interactions Hommes Robots, 15h éqTD, M2, ENSC, Bordeaux INP, France.

Master: Jessica Colombel, Robot Operating System, 10h éqTD, M2, Enseirb/Ensc, Bordeaux INP, France.

Master: Charles Fage, Cognitive Disabilities and Assistive Technologies, , M2, Master de Sciences cognitives et Ergonomie, Université de Bordeaux, France.

Master: Charles Fage, Human-Computer Interactions, 15h éqTD, M1, Master de Sciences cognitives et Ergonomie, Université de Bordeaux, France.

Licence: Charles Fage, Disabilities Management and Ethics, 15h éqTD, L2, Licence de MIASHS, Université de Bordeaux, France.

Licence: Charles Fage, Alternative and Augmentative Communication, 15h éqTD, 2ème année, Institut de formation en ergothérapie de Bordeaux, France.

Licence: Charles Fage, Autism and Developmental Disorders, 15h éqTD, 2ème année, Institut de formation en ergothérapie de Bordeaux, France.

Licence: Charles Fage, Aging and Assistive Technologies, 15h éqTD, 2ème année, Institut de formation en ergothérapie de Bordeaux, France.

10.2.2. Supervision

PhD: Jonathan Savin, "Modeling motion variability using virtual humans for the ergonomic evaluation of work stations", Sorbonne Université, 2019/11/22, Philippe Bidaud (Onera / Sorbonne Université) and Jacques Marsot (INRS) and Vincent Padois;

PhD: José Pedro Pontes, "Optimization and adaptation of robot locomotion in varying conditions: an evolutionnary approach", Sorbonne Université, 2019/3/12, Stéphane Doncieux (Sorbonne Université) and Vincent Padois and Cristina Santos (U. Minho, Portugal);

PhD in progress: Quoc Bach Hoa (Thèse ED SMAER, Paris), "Biomechanically plausible simulations of healthy and altered human locomotion", September 2017–, Vincent Padois and Faiz Ben Amar (Sorbonne Université)

PhD in progress: Nassim Benhabib (Inria / Région NA – Woobot project), "Méthodologie de conception et de commande d'un système robotique collaboratif pour assister et sécuriser les gestes d'un opérateur", November 2018 – , David Daney and Vincent Padois;

PhD in progress: Jessica Colombel (Inria), "Analyse du mouvement humain pour l'assistance à la personne", February 2019 – , François Charpillet and David Daney (Inria Nancy Grand-Est);

PhD in progress: Nicolas Simonazzi (CIFRE Orange), "Analyse comportementale et détection des émotions dans le cadre de l'utilisation de chat-bots en ligne", May 2018 –, Jean-Marc Salotti;

PhD in progress: Baptiste Prébot (DGA), "Partage des représentations et de la conscience de situation", January 2017 –, Jean-Marc Salotti and Bernard Claverie (ENSC, IMS laboratory;

PhD in progress: Olfa Jema (Cotutelle Université de Sousse, Tunisie), "Analyse du mouvement humain", December 2017 –, Lotfi Romdhane, Sami Bennour, David Daney;

PhD in progress: Pierre Laguillaumie (Thèse laboratoire PPRIME), "Méthodologie pour la mise en œuvre d'un robot collaboratif de nouvelle génération prenant en compte la sécurité et le confort biomécanique de l'opérateur en situation de travail", March 2018 – Jean-Pierre Gazeau and Vincent Padois.

10.2.3. *Juries*

Vincent Padois:

- HdR: Adrien Escande, "Numerical Optimization and Motion Generation in Robotics", Université de Montpellier, 2019/2/25;
- PhD: Nolwenn Briquet-Kerestedjian, Reviewer, "Impact detection and classification for safe physical Human-Robot Interaction under uncertainties", Université Paris-Saclay, 2019/7/10;
- PhD: Kai Pfeiffer, Examinor, "Efficient Kinematic and Algorithmic Singularity Resolution for Multi-Contact and Multi-Level Constrained Dynamic Robot Control", Université de Montpellier, 2019/12/4;
- PhD: Sonny Tarbouriech, Reviewer, "An energetic approach to safety in robotic manipulation", Sorbonne Université, 2019/12/5.

David Daney:

- PhD: Mathias Bordon, Examinor, "Modélisation et calibration pour une numérisation robotisée", 2019/06/06, École Normale Supérieure Paris-Saclay
- PhD: Thomas Le Mézo, Reviewer, "Bracketing largest invariant sets of dynamical systems; An application to drifting underwater robots in ocean currents", 2019/12/05, ENSTA Bretagne;
- PhD: Étienne Picard, Reviewer, "Modeling and robust control of cable-driven parallel robots for industrial applications", 2019/12/17, Université Bretagne Loire .

Jean-Marc Salotti:

- PhD: Damien L'Haridon, Reviewer, "Décision collective optimisée en milieu extrême: application aux situations inconnues en vol spatial habité", ISAE - Université de Toulouse, 2019/05/02
- PhD: Vanessa Haykal, Reviewer, "Modélisation des séries temporelles par apprentissage profond", Université de Tours, 2019/12/02;

10.3. Popularization

10.3.1. *Interventions*

- "Collaborative Robotics" – Demonstration at the 2019 Fête de la Sciences by Lucas Joseph – Cap Sciences, Bordeaux

- "Tame a robot" with Thymios II – Animation by Jessica Colombel at Fête de la Science, Université de Lorraine, Nancy, October 2019.

- Fage, C. "Communication Alternative et Améliorée – Aider les enfants et adultes avec difficultés de communication". Invited Oral Presentation at the Interphase Association (Autism care) by Charles Fage, Bordeaux, December 2019.

AVIZ Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Steve Haroz is a co-founder and co-organizer of Transparent Statistics in Human-Computer Interaction.
- Steve Haroz co-organized the Visualization for Communication 2019 workshop (http://viscomm.io).
- Petra Isenberg co-organized a Dagstuhl seminar on Mobile Data Visualization (https://www.dagstuhl.de/19292).
- Petra Isenberg co-organized a tutorial at the Ubicomp conference about Visualization for Ubicomp.
- Jean-Daniel Fekete co-organized a Shonan seminar on Interactive Visualization for Interpretable Machine Learning (https://shonan.nii.ac.jp/seminars/161/).

10.1.1.2. Member of the Organizing Committees

- Steve Haroz was Open Practices chair of the IEEE Information Visualization conference (until July 2019).
- Jean-Daniel Fekete was a member of the VGTC Best Thesis Award 2019.
- Tanja Blascheck was Video and Demo co-chair for ETRA 2019.
- Tanja Blascheck was Publicity chair for VISSOFT 2019.
- Petra Isenberg is a member of the IEEE reVISe committee 2019–2020.
- Petra Isenberg is the ACM SigCHI Paris Treasurer (2017–2019)
- Jean-Daniel Fekete was associate editor-in-chief of TVCG, liaison with the IEEE VIS paper chairs.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Petra Isenberg was paper chair for IEEE Information Visualization

10.1.2.2. Member of the Conference Program Committees

- Jean-Daniel Fekete was a member of the program committee for VIS.
- Petra Isenberg was a member of the ACM CHI program committee.
- Tobias Isenberg was a member of the program committee for IEEE SciVis, IVAPP, ACM/Eurographics Expressive, TrustVis Workshop, EuroVis, ACM IUI, IEEE VR.
- Pierre Dragicevic was a member of the program committee for InfoVis.
- Paola Valdivia was a member of the program committee for Short Papers of VIS.
- Tanja Blascheck was a member of the program committee for VMV, LEVIA, VISSOFT, EuroVis Posters, EuroVis Short Papers, ETRA, ETVIS, VAST.

10.1.2.3. Reviewer

- Steve Haroz reviewed for CHI, VIS
- Jean-Daniel Fekete reviewed for CHI
- Tobias Isenberg reviewed for EuroVis, ACM/Eurographics Expressive, ACM IUI, ACM SIGGRAPH, IEEE PacificVis, TrustVis, ACM UIST, IEEE VIS, IEEE VR

- Pierre Dragicevic reviewed for CHI, VIS, Interact, IHM
- Tanja Blascheck reviewed for LEVIA, VMV, VISSOFT, VAST, EuroVis, PacificVis, ETRA, ETVIS, CHI, EuroVA, PacificVAST, VAST Challenge, Vision X Vis, Vis Short Papers
- Paola Valdivia reviewed for Short Papers of VIS 2019
- Xiyao Wang reviewed for CHI, VR, ICMI, MobileHCI, Vis
- Petra Isenberg reviewed for CHI, EuroVis

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Pierre Dragicevic is member of the editorial board of the Journal of Perceptual Imaging (JPI) and the Springer Human–Computer Interaction Series (HCIS).
- Jean-Daniel Fekete is associate editor-in-chief of IEEE Transactions on Visualization and Computer Graphics.
- Petra Isenberg is associate editor of IEEE Transactions on Visualization and Computer Graphics.
- Petra Isenberg is associate editor-in-chief at IEEE Computer Graphics & Applications.
- Tobias Isenberg is member of the editorial board of Elsevier's Computers & Graphics journal.

10.1.3.2. Reviewer - Reviewing Activities

- Steve Haroz reviewed for Cognition, Advances in Methods and Practices in Psychological Science, and Meta-Psychology
- Jean-Daniel Fekete reviewed for TVCG
- Tobias Isenberg reviewed for C&G, TIIS, TVCG
- Pierre Dragicevic reviewed for TVCG, CG&A, IV, Behavior & Information Technology, JPI
- Tanja Blascheck reviewed for IWC, TOCCHI, TVCG
- Petra Isenberg reviewed for TVCG

10.1.4. Invited Talks

- Steve Haroz: "How the Brain Perceives and Remembers Quantities". Graphics Hunters Show Conference - Utrecht, The Netherlands.
- Steve Haroz: "How the Brain Perceives and Remembers Quantities". Ecole Normal Superior. Paris, France.
- Steve Haroz: "How the Brain Perceives and Remembers Quantities". Keynote at VisCrowd 2019. Clermont-Ferrand, France.
- Steve Haroz: "How the Brain Perceives and Remembers Quantities". Datarama 2019. Nantes, France.
- Steve Haroz: "Set Comparison Is Imprecise and Prone to Bias". VisXVision workshop at IEEE VIS 2019. Vancouver, Canada.
- Steve Haroz: "Transparency in Empirical Research". Panel talk at IEEE VIS 2019. Vancouver, Canada.
- Steve Haroz: "Using Open Science to Improve Credibility in Visualization, HCI, and Vision Science Research". SFB/TRR 161. Waldachtal, Germany.
- Jean-Daniel Fekete: "Practical Use Cases for Progressive Visual Analytics", Seminar at Shandong University, Qingdao, China, Nov. 26, 2019
- Jean-Daniel Fekete: "Dynamic Social Networks and Progressive Data Analysis", Seminar at Ochanomizu University, Tokyo, Japan, Nov. 22, 2019
- Jean-Daniel Fekete: "Advances in Network Visualization", Keynote at MARAMI 2019, Dijon, France, Nov. 8, 2019

- Jean-Daniel Fekete: "Multidimensional Projection at Scale on the Web: Tips and Tricks", Keynote of the HILDA 2019 Workshop, Amsterdam, The Netherlands, July 5th, 2019.
- Jean-Daniel Fekete: "Exploration visuelle d'hypergraphes dynamiques", Seminar at INED, Paris, France, June 18th, 2019.
- Jean-Daniel Fekete: "Données, humanité(s), démarche scientifique", Panel at Inria Scientific Days 2019, Lyon, France, June 6th, 2019.
- Jean-Daniel Fekete: "Analyzing the Evolution of Relationships with Dynamic Hypergraphs", Invited Talk, University of Delft, Delft, The Netherlands, Apr. 8th, 2019
- Jean-Daniel Fekete: "Analyzing the Evolution of Relationships with Dynamic Hypergraphs", Invited Talk, EHESS, Paris, France, Apr. 3, 2019
- Jean-Daniel Fekete: "Multidimensional Projection at Scale on the Web: Tips and Tricks", Invited Talk, VISUS Group, Univ. of Stuttgart, Stuttgart, Germany, Mar. 1, 2019
- Tobias Isenberg: "Interactive 3D Data Exploration", TU Dresden, Germany, Dec, 6, 2019
- Tobias Isenberg and Xiyao Wang: "VR and AR Visualizations in High-Energy Physics", Learning to Discover: Advanced Pattern Recognition Workshop, Institut Pascal, Orsay, France, Oct. 18, 2019
- Tobias Isenberg: "Carnivorous Plants and How to Visualize their Habitats based on Social Media Data", VieVisDays, TU Wien, Austria, Aug. 20, 2019
- Tobias Isenberg and Xiyao Wang: "Understanding TrackML Results with a Visualization System using a PC + HoloLens Hybrid", TrackML workshop at CERN, Geneva, Switzerland, Jul. 1, 2019
- Tobias Isenberg: "Illustrative Visualization and Interactive Exploration of Three-Dimensional Scientific Data", Synchrotron SOLEIL, France, May. 20, 2019
- Tobias Isenberg: "Illustrative Visualization and Interactive Exploration of Three-Dimensional Scientific Data", Shandong University, Qingdao, China, Feb. 24, 2019
- Tanja Blascheck: "Understanding Interactive Visualizations", Inria Sophia-Antipolis, Nice, France, January 2019.
- Petra Isenberg: "Top Research Questions for Empirical Studies in Visualization", Panel statement given at IEEE VIS 2019, Vancouver, Canada.
- Petra Isenberg: "Physical, Contextual, and Full of Value? What do novel directions in Visualization teach us about judging the value of visualization?", GiCentre Seminar Talk, City, University of London, UK
- Petra Isenberg: "Physical, Contextual, and Full of Value? What do novel directions in Visualization teach us about judging the value of visualization?", Keynote at BioVis 2019 at the ISMB conference in Basel, Switzerland

10.1.5. Leadership within the Scientific Community

- Jean-Daniel Fekete was the chair of the EuroVis 2019 Best PhD Award.
- Petra Isenberg and Tobias Isenberg are members of the International Beliv workshop steering committee.
- Tobias Isenberg is a member of the steering comittee for ACM/Eurographics Expressive Graphics.

10.1.6. Research Administration

- Petra Isenberg was vice-president of the Inria Saclay CR hiring committee
- Pierre Dragicevic is Member of the Commission Consultative de Spécialistes de l'Université Paris-Sud (CCSU).
- Pierre Dragicevic is co-chair of the DataSense Axis of the Labex DigiCosme.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master : Petra Isenberg, Interactive Information Visualization, 21h en equivalént, niveau (M1, M2), Univerisé Paris Sud, France.

Master : Petra Isenberg, Graphisme et Visualisation, 24h en equivalént TD, niveau (M2), Polytech Paris-Sud, France.

Master : Petra Isenberg, Visual Analytics, 48 equivalént, niveau (M2), CentraleSupelec, France.

Licence : Tobias Isenberg, "Introduction to Computer Graphics", 12h en équivalent TD, L3, Polytech Paris-Sud, France.

Master : Tobias Isenberg, "Photorealistic Rendering/Advanced Computer Graphics", 21h en équivalent TD, M1, Polytech Paris-Sud and Université Paris-Saclay, France.

10.2.2. Supervision

PhD in progress: Alexis Pister, *Exploration, analyse, interprétabilité de larges réseaux historiques*, Université Paris-Saclay, defense planned for 2022, Jean-Daniel Fekete, Christophe Prieur, Inria.

PhD in progress: Yuheng Feng, *Visualisation pour l'analyse progressive"*, Université Paris-Saclay, defense planned for 2022, Jean-Daniel Fekete, Université Paris-Saclay

PhD in progress: Mickaël Sereno, *Collaborative Data Exploration and Discussion Supported by AR*, Univ. Paris-Sud, defense planned for September 2021, Tobias Isenberg

PhD in progress: Xiyao Wang, *Augmented Reality Environments for the Interactive Exploration of 3D Data*, Univ. Paris-Sud, defense planned for October 2020, Tobias Isenberg

PhD in progress: Sarkis Halladjian, *Spatially Integrated Abstraction of Genetic Molecules*, Univ. Paris-Sud; defense planned for September 2020, Tobias Isenberg

PhD: Haichao Miao, *Geometric Abstraction for Effective Visualization and Modeling*, TU Wien, Austria, August 5, 2019, supervised by Ivan Viola, co-supervised by Ivan Barišic, Tobias Isenberg, and Eduard Gröller.

PhD in progress: Mohamad Alaul Islam: *MicroVisualization for mobile and ubiquitous data exploration*, Université Paris-Saclay, defense planned for 2022, Petra Isenberg and Jean-Daniel Fekete.

PhD in progress: Natkamon Tovanich: *Blockchain Visual Analytics*, defense planned for 2021, Université Paris-Saclay, Petra Isenberg and Jean-Daniel Fekete.

10.2.3. Juries

- Pierre Dragicevic: PhD proposal evaluation committee of Luiz Morais (Universidade Federal de Campina Grande, Brésil).
- Pierre Dragicevic: Reviewer for Hu Xi's M2 internship.
- Pierre Dragicevic: Co-Supervisor for Yumin Hong's M2 internship.
- Pierre Dragicevic: Reviewer for Talent Doctoral Fellowship Programme at the University of Copenhagen.
- Pierre Dragicevic: Reviewer for ATER 2019 applications at the Université Paris Saclay.
- Petra Isenberg: Reviewer for GRIOUI Fairouz M2 internship.
- Jean-Daniel Fekete: Member of the PhD committee of Dr. Philip Tchernavskij
- Jean-Daniel Fekete: Member of the PhD committee of Dr. Hugo Romat.
- Jean-Daniel Fekete: Member of the PhD committee of Dr. Sriram Karthik Badam.
- Jean-Daniel Fekete: Member of the PhD committee of Dr. Nicola Pezzotti.

10.3. Popularization

10.3.1. Articles and contents

- Steve Haroz's twitter account on a broad range of topics including open science, visualization, and visual perception have been viewed over 1.1 million times and received over 30,000 engagements in the form of clicks, likes, and retweets in 2019.

- Steve Haroz maintains a website cataloging openly accessible papers and research materials in visualization research. Open Access Vis has averaged 2,000 unique visitors per year for the past three years.

- Steve Haroz maintains a research website receiving 5,000 unique visitors and a blog on research receiving 2,000 unique visitors in 2019.

- Pierre Dragicevic and Yvonne Jansen: the data physicalization wiki and the List of Physical Visualizations and Related Artefacts (600 weekly visits) are continuously being updated.

- Matthew Brehmer wrote a Medium article "Visualizing Trends on Mobile Phones: Animation or Small Multiples?" on an Aviz co-authored publication https://medium.com/multiple-views-visualization-research-explained/mobiletrendvis-a948fa65bccd

10.3.2. Interventions

- Lonni Besançon gave a TEDx talk on work conducted at Aviz with Pierre Dragicevic and Tobias Isenberg [11]. Watch the talk here: https://www.youtube.com/watch?v=pDHomZ8FEoU.

- Jean-Daniel Fekete: Panel at Imaginascience 2019, « Faire parler les données : le défi de la data visualisation », Annecy, October 16, 2019

10.3.3. Creation of media or tools for science outreach

Petra Isenberg collaborated on research to develop a visualization tool to better understand clustering algorithms. The tool is available at https://educlust.dbvis.de/.

<p align="center" style="color:red">CEDAR Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

I. Manolescu was a steering committee member for the International Workshop on Misinformation, Computational Fact-Checking and Credible Web in conjunction with The Web Conference 2019.

I. Manolescu was a member of the scientific committee in charge of organizing the Global Forum on AI for Humanity (http://gfaih.org), an international conference organized under the patronage of the French government to discuss the impact and perspectives for AI research on science and the society at large. The conference featured an opening intervention by Cédric Villani and a closing speech by the French president Emmanuel Macron.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

I. Manolescu has been a chair of the tutorial track at the ACM SIGMOD 2019 conference.

9.1.2.2. Member of the Conference Program Committees

I. Manolescu has been a member of the program committees of: the IEEE International Conference on Data Engineering (ICDE, demonstrations track) 2019, the DASFAA Conference 2019, the Extended Semantic Web Conference (ESWC) 2019, and the International Conference on Web Engineering (ICWE) 2019.

9.1.3. Journal

Y. Diao has been the Editor-in-Chief of the ACM SIGMOD Record.

9.1.3.1. Member of the Editorial Boards

Y. Diao has been an associate editor of the ACM Transactions on Database Systems (TODS).

I. Manolescu has been a member of the editorial board of the Proceedings of Very Large Databases (PVLDB) journal.

9.1.4. Invited Talks

I. Manolescu has given the following **keynote talks**:

- "Journalistic Dataspaces: Data Management for Journalism and Fact-Checking", keynote talk at the EDBT (Extending Database Technologies) Conference 2019 [28].
- "Computational fact-checking: problems, state of the art and perspectives", keynote at EGC (Extraction and Gestion de Connaissances, the French-speaking knowledge extraction and knowledge management conference) 2019 [27].

9.1.5. Leadership within the Scientific Community

- Y. Diao and I. Manolescu are members of the **PVLDB Endowment Board**, the entity in charge of organizing the publication of the prestigious PVLDB journal (A* in the CORE ranking) and of organizing the yearly PVLDB conference.

- Y. Diao has been the Chair of the ACM SIGMOD Research Highlight Award, a member of the ACM SIGMOD Executive Committee, and a member of the ACM SIGMOD Software Systems Award Committee.

- I. Manolescu is a member of the steering committee of **BDA**, the entity in charge of organizing: the yearly informal Bases de Données Avancées (BDA) conference, mostly attended by members of the French-speaking data management scientific community; and a summer school on Big Data Management, every two years.

9.1.6. Scientific Expertise

I. Manolescu has been part of the HCERES visiting committee of the Laboratoire Informatique de Grenoble (LIG) on December 2-4.

9.1.7. Research Administration

I. Manolescu has become the scientific director of **LabIA**, an initiative by the DINUM (Direction Interministerielle du Numérique) whose goal is to apply AI research and technology solutions to problems raised by the public administration, at the local or regional level. LabIA ran a selective application process which funded a dozen projects to be carried over by technology company (contractors) and four to be solved by research teams working together with the promoters (teams involved in public administration). The research projects funded by LabIA are respectively proposed by: the Cour de Cassation (the highest jurisdiction of the state), the Direction Générale de Controle de la Concurrence et de la Repression des Fraudes (DGCCRF, the national consumer watchdog agency), la SHOM (Service Hydrographique de la Marine, the seabed mapping service of the Marine) and the IGN (Institut Géographique National), in particular the team that is in charge of producing the detailed, dynamic information of the positioning of every fragment in the Earth crust.

I. Manolescu has been a member of **Inria Commission d'Evaluation** until the summer of 2019. As a consequence, she participated to the hiring committees for junior researchers (CRCN) of the Inria Lille and Inria Grenoble research centers, in May 2019; she has also participated to the final executive committee meeting that decided on the hires, in Paris, in June 2019.

I. Manolescu has been a member of a hiring committee that recruited a full-time Assistant Professor in Data Management at **Ecole Polytechnique**, and she has also headed another committee that recruited a part-time Assistant Professor in Data Science at Ecole Polytechnique.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

I. Manolescu is a part-time (50%) professor at Ecole Polytechnique, where she teaches:

- Master: I. Manolescu, "Database Management Systems", 52h, M1, École Polytechnique.
- Licence: I. Manolescu, "Giant Global Graph", 18h, L3, École Polytechnique.

She also teaches on appointment outside of Ecole Polytechnique:

- Master: I. Manolescu, "Architectures for Massive Data Management", 20h, M2, Université Paris-Saclay.

M. Buron and P. Guzewicz are Teaching Assistants at Ecole Polytechnique. Further, P. Guzewicz also taught 12h of lab in the M2 course "Architectures for Massive Data Management" mentioned above.

9.2.2. Supervision

PhD in progress: Maxime Buron: "Raisonnement efficace sur des grands graphes hétérogènes", since October 2017, François Goasdoué, Ioana Manolescu and Marie-Laure Mugnier (GraphIK Inria team in Montpellier)

PhD: Tien-Duc Cao, "Toward Automatic Fact-Checking of Statistic Claims", Université de Paris Saclay, 26/09/2019, Ioana Manolescu and Xavier Tannier (LIMICS, Université de Paris-Sorbonne).

PhD in progress: Ludivine Duroyon: "Data management models, algorithms & tools for fact-checking", since October 2017, François Goasdoué and Ioana Manolescu (Ludivine is in the Shaman team of U. Rennes 1 and IRISA, in Lannion)

PhD in progress: Paweł Guzewicz: "Expressive and efficient analytics for RDF graphs", since October 2018, Yanlei Diao and Ioana Manolescu.

PhD in progress: Qi Fan: "Multi-Objective Optimization for Data Analytics in the Cloud", since December 2019, Yanlei Diao.

PhD in progress: Enhui Huang: "Interactive Data Exploration at Scale", since October 2016, Yanlei Diao and Anna Liu (U. Massachussets at Amherst, USA).

PhD in progress: Vincent Jacob: "Explainable Anomaly Detection in High-Volume Stream Analytics", since December 2019, Yanlei Diao.

PhD in progress: Luciano di Palma, "New sampling algorithms and optimizations for interactive exploration in Big Data", since October 2017, Yanlei Diao and Anna Liu (U. Massachussets at Amherst, USA)

PhD in progress: Khaled Zaouk: "Performance Modeling and Multi-Objective Optimization for Data Analytics in the Cloud", since October 2017, Yanlei Diao.

9.2.3. Juries

- I. Manolescu has been part of the PhD committee of Adnène Belfodil, who defended his PhD thesis titled "Exceptional Model Mining for Behavioral Data Analysis" at INSA Lyon, on October 24, 2019.

9.3. Popularization

9.3.1. Articles and contents

I. Manolescu has been interviewed in the following general-audience media publications:

- "L'intelligence artificielle signe-t-elle la fin du journalisme ?", Science et et Avenir special issue on IA, Sept 25 (dated November) 2019
- "Fake news: ces technologies qui les traquent", Industrie et Technologies, Feb 5, 2019
- "Les algorithmes à l'assaut de la désinformation", Science et Avenir, January 29, 2019
- "Les seniors partagent sept fois plus de «fake news» que les jeunes sur Facebook", in Le Figaro, January 2019

9.3.2. Interventions

- Ioana Manolescu participated to a social science conference "Post-vérité et intox: où allons-nous?", organized by Fondation Maison des sciences de l'homme (FMSH) and Cité des Sciences, in February 2019 (presentation slides, présentation video)
- I. Manolescu presented her career and research at the "*Rendez-vous des jeunes mathématiciennes et informaticiennes*" (RJMI, a math and CS event organized for high-school female students) in October 2019.
- M. Buron, V. Jacob and I. Manolescu presented data management research to a group of 6 interns (13 years old, one-week long *stage de 3e*) in December 2019.

<p style="text-align:center">**CHORALE Team**</p>

9. Dissemination

9.1. Scientific Events: Organisation

9.1.1. *General Chair, Scientific Chair*

Philippe Martinet the corresponding chair for the PPNIV19 IRO19 workshop (https://project.inria.fr/ppniv19). He has managed the reviewing process, the website update and the general publicity. More than 300 attendees for this 11th edition.

9.1.2. *Member of the Organizing Committees*

Philippe Martinet has co-organized the IROS19-PPNIV19 (https://project.inria.fr/ppniv19) workshop with Christian Laugier, Marcelo H. Ang, Christoph Stiller and Miguel Sotelo (over 300 attendees).
Philippe Martinet has co-organized the Cutting edge Forum on Autonomous Driving (https://project.inria.fr/ad19/) with Christian Laugier, Marcelo H. Ang, Christoph Stiller and Miguel Sotelo (more than 150 attendees).

9.1.3. *Scientific Events: Selection*

9.1.3.1. *Chair of Conference Program Committees*

Philippe Martinet was Regional Chair for CISRAM 2019.

9.1.3.2. *Member of the Conference Program Committees*

Philippe Martinet was member for the IPC for ICINCO 2019.
Patrick Rives was Program Committee member of the Conférence Française de Photogrammétrie et de Télédétection 2019 (CFPT)

9.1.3.3. *Reviewer*

Philippe Martinet was Associated Editor for ITSC 2019, and reviewer for ICINCO19, PPNIV19.
Guillaume Allibert has reviewed papers for ICRA, IROS, IFAC WC, CDC, ACC.
Paolo Salaris has reviewed papers for ICRA, CDC, RSS.
Patrick Rives has reviewed papers for ICRA, IROS, IV, ICAR.
Renato Martins has reviewed papers for WACV, ICRA, IROS, ITSC, ICAR, PPNIV19.

9.1.4. *Journal*

9.1.4.1. *Member of the Editorial Boards*

Philippe Martinet is member of the Editorial Board of the Springer ISCA Book Series since 2014.
Philippe Martinet is co-Editor of the Springer book collection "Parallel Robots : Theory and Applications" setup in january 2015.

9.1.4.2. *Reviewer - Reviewing Activities*

Philippe Martinet is Associate Editor of the journal IEEE-Transactions on Intelligent Vehicles.
Guillaume Allibert has reviewed papers for RA-L and IEEE Trans. on Mechatronics.
Paolo Salaris has reviewed: RA-L, TRO, AURO
Renato Martins has reviewed papers for RA-L and Elsevier JVCI.

9.1.5. *Invited Talks*

Patrick Rives gave a Plenary Talk at the Universidade Federal de Minas Gerais (UFMG), Brazil
Title: Towards new sensors and representations for autonomous navigation in large scale human-like environments

9.1.6. Scientific Expertise

- International:
    - Philippe Martinet is corresponding chair and co-chair with C. Laugier and Christoph Stiller, of the IEEE RAS Technical Committee on "Autonomous Ground Vehicles and Intelligent Transportation Systems (AGVITS)".
    - Philippe Martinet is Deputy director of the GdR Robotique.
    - Philippe Martinet was member of CNU 61 from 2011 until September 2019.
    - H2020: Philippe Martinet has participated of the ICT-2019-2 call (4 projects were evaluated)
    - STIC Amsud: Philippe has evaluated one proposal in 2019
    - Skywin (Aerospace Cluster of Wallonia): Patrick Rives has evaluated one proposal
    - Program BRIDGE Discovery (Swiss National Science Foundation): Patrick Rives has evaluated one proposal
- National:
    - Philippe Martinet is deputy director of the GdR robotics.
    - ANR: Guillaume Allibert was part of the CES33 in 2019. He has participated to the evaluation of the pre-projects and to the final projects evaluation.
    - ANR: Patrick Rives has evaluated one proposal in 2019
    - HCERES: Philippe has participated of the evaluation of LAAS (November 2019), IFFS-TAR AME department (March 2019) and ONERA DTIS Department (December 2019).
    - ISITE-NEXT in Nantes: Philippe Martinet has evaluated one Talent application in 2019
    - ANRT: Philippe Martinet has evaluated one application for CIFRE grant in 2019
    - Philippe Martinet is coordinator of the ANR MOBI-Deep project
    - Guillaume Allibert is coordinator of the ANR CLARA project
- Local:
    - Paolo Salaris was member of CSD (Comité de Suivi Doctoral) in Inria Sophia Antipolis until end of August 2019.

9.1.7. Research Administration

Guillaume Allibert is the SIS team deputy head at I3S since 2017. This team is composed of 57 people (18 teacher-researchers, 11 researchers, 6 ATER & post doc, 3 emeritus and 19 PhD students).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Guillaume Allibert is assistant professor at the Cote-d'Azur-University. He teaches at the GEII department of the IUT of Nice Côte d'Azur. He is in charge of two complete teaching modules: control and computer science. He also participates in the mathematics course.

Philippe Martinet managed four main actions in 2019 in relation with the education system:

- EIT Digital AUS: Participation in the definition of the educational program. This master program will be done at Polytech Sophia.
- New engineering track on autonomous system: Participation in the discussion to put in place a new engineering track between Polytech Sophia and Ecole des Mines. This Engineering track will start in 2021.
- EMJMD MIR (Erasmus Mundus Joint Master Degree on Marine and Maritime Intelligent Robotics): Jean-Pierre Merlet and Philippe Martinet have discussed with the coordinator of the master Vincent Hugel in order that Inria become an associated partner for this new educational program in robotic.
- Philippe Martinet, Jean-Pierre Merlet and Guillaume Allibert have co-organized the first GdR Robotics Winter school on Robotics Principia (https://project.inria.fr/roboticsprincipia/). An HAL collection has been setup (https://hal.inria.fr/ROBOTICA-PRINCIPIA).

9.2.2. Supervision

PhD : David Perez Morales, Multisensor based control in intelligent parking applications, Ecole Centrale de Nantes, December 6th 2019, P. Martinet, O. Kermorgant, S. Dominguez

PhD : Luis Contreras, SLAM collaboratif dans des environnements extérieurs, Ecole Centrale de Nantes, April 10th 2019, P. Martinet, O. Kermorgant

PhD in progress : Mohammed Boussaha, Hybrid urban scene analysis from mobile mapping images and laser scan, Université Paris Est -MSTIC, 15/10/2016, Bruno Vallet (IGN-Matis), Patrick Rives

PhD in progress : Dyanna Hassan, Plate-forme robotisée d'assistance aux personnes à mobilité réduite, Univ Côte d'Azur, 1/01/2017, P. Rives, P. Salaris

PhD in progress : Ihab Mohammed, Coupling Deep Learning and Advanced Control in UAV Navigation, Univ Côte d'Azur, 1/12/2018, P. Martinet, G. Allibert, P. Salaris

PhD in progress: Franco Fusco, High-speed visual servoing, Ecole Centrale de Nantes, 1/9/2017, P. Martinet, O. Kermorgant

PhD in progress : Maria Kabtoul, Proactive Social navigation for autonomous vehicles among crowds, Univ Grenoble Alpes, 1/09/2018, A. Spalanzani, P. Martinet

PhD in progress : Luiz Alberto Serafim Guardini, Autonomous car driving: use of dynamic probabilistic occupancy grids for contextualized planning of emergency trajectory with minimal criticity, Univ Grenoble Alpes, 1/10/2018, A. Spalanzani, P. Martinet, C. Laugier

PhD in progress : Zongwei Wu, New convolution for spherical images using depth, Université de Bourgogne Franche Comté, 1/10/19, C. Demonceaux, G. Allibert,

9.2.3. Juries

HdR : Guillaume Caron, Vision robotique directe, Univ Picardie Jules Verne, December 10th 2019 (P. Martinet, reviewer)

PhD : David Sierra Gonzales, Towards Human like prediction and decision making for automated vehicles on highway scenarios, Univ Grenoble Alpes, April 1st 2019, (P. Martinet, reviewer)

PhD : Soler Ulun, Multi-robot relative localization using computer vision, NTU Singapore, 2019, (P. Martinet, reviewer)

PhD : Jiang Xiaoyue, Visual and Lidar based SLAM by variational Bayesian method, NTU Singapore, 2019, (P. Martinet, reviewer)

PhD : Michel Moukari, Estimation de profondeur à partir d'images monoculaires par apprentissage profond, Univ de Caen, July 1st 2019, (P. Martinet, reviewer)

PhD : Pavan Vasishta, Building and Leveraging prior knowledge for predicting pedestrain behavior around autonomous vehicles, Univ Grenoble Alpes, September 30th 2019, (P. Martinet, examinator)

PhD : David Perez Morales, Multisensor based control in intelligent parking applications, Ecole Centrale de Nantes, December 6th 2019 (G. Allibert, examinator)

PhD : Thibaut Tezenas du Montcel, Evitement d'obstacles pour quadrirotors en utilisant un capteur de profondeur, Univ Grenoble Alpes, December 16th 2019 (G. Allibert, examinator)

PhD : Jose Juan Tellez, Teleoperation of an UAV for navigation in unstructured environments using a portable haptic interface, Univ Grenoble Alpes, June 26th 2019 (G. Allibert, examinator)

PhD : Kevin Giraud Esclasse, Towards reactive motion generation on exteroceptive feedback for generalized locomotion of humanoid robots, Univ Toulouse Midi-Pyrénées, December 18th 2019 (G. Allibert, examinator)

PhD : Thiago L. Gomes. Transferring human motion and appearance in monocular videos, PhD Qualifying Exam on Computer Science, Universidade Federal de Minas Gerais, Brazil, July 12th 2019 (R. Martins, examinator)

9.3. Popularization

9.3.1. Articles and contents

Philippe Martinet and Renato Martins have been interviewed in December 2019 by France 3 Côte d'Azur in order to popularize the work of CHORALE in the field of Connected Autonomous Vehicles. Real demonstrations of autonomous driving have been done at Inria Sophia Antipolis, and another one at CASA experimental site. An FR3 magazine will be launched in february 2020.

9.3.2. Interventions

- Patrick Rives has presented the topic of Autonomous vehicle during the day "Formation IA pour les professeurs des lycées", Sophia Antipolis, 14/11/2019

<h1 style="text-align:center; color:red">CHROMA Project-Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- C. Laugier was General Co-Chair of IEEE/RSJ IROS [0] 2019 (Macau, Nov 2019).

- C. Laugier co-organized in the scope of IEEE/RSJ IROS 2019 and of the IEEE RAS Technical Committee IGV-ITS, the 11th Workshop of the series PPNIV (Planning, Perception and Navigation for Intelligent Vehicles) having attracted about 300 people (see http://project.inria.fr/ppniv19 for more details).

- C. Laugier co-organized at IEEE/RSJ IROS 2019 a Cutting Edge Forum on "Robotics, AI and ITS for Autonomous Driving" having attracted about 150 people (see https://project.inria.fr/ad19/ for more details).

- O. Simonin was General Co-Chair and Co-Organizer with F. Charpillet (Inria Nancy) of the JNRR 2019 conference, the bi-annual conference gathering the French Robotic community, in Vittel ($\sim$ 200 pers.) October 15-17 2019. https://jnrr2019.loria.fr/

- O. Simonin was General and Scientific Chair of JFSMA 2019 (*27emes Journées Francophones sur les Systèmes Multi-Agents*), in Toulouse, as part of PFIA 2019 (Plate-forme IA), July 1-5 2019. https://www.irit.fr/pfia2019/jfsma/

10.1.1.2. Member of the Organizing Committees

- Agostino Martinelli was in the organizing committee of the workshop on "visual-inertial navigation: challenges and applications", held during IROS 2019 in Macau, China.

- C. Laugier was Member of the Organizing Committee of the conference IEEE CIS-RAM 2019 (Bangkok, Nov 2019).

- J. S. Dibangoye and O. Simonin were Members of the Organizing Committee of IA^2 – Institut d'Autonomne en Intelligence Artificielle, Lyon 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- O. Simonin was Chair of JFSMA Program Committee (27emes journées francophones sur les systèmes multi-agents), Toulouse, France, July 3-5, 2019. He co-edited with S. Combettes (IRIT/Toulouse) the JFSMA 2019 Proceedings, Cépaduès 2019, ISBN 9782364937192.

10.1.2.2. Member of the Conference Program Committees

- C. Laugier served as Associate Editor for the conference IEEE ICRA 2019 (Montreal, May 2019) and also for IEEE ICRA 2020 (Paris, May 2020).

- C. Laugier served as member of the Senior Program Committee of IEEE/RSJ IROS 2019 (Macau, Nov 2019).

- A. Martinelli was Associate Editor for IEEE ICRA 2020.

- A. Spalanzani was PC member of the ECAI 2019 conference.

- J. S. Dibangoye was Senior PC member of the ECAI 2019 conference.

- J. S. Dibangoye was PC member of the IJCAI 2019 conference.

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[0]IEEE/RSJ International Conference on Intelligent Robots and Systems

- J. S. Dibangoye was PC member of the AAAI 2020 conference.
- J. S. Dibangoye was PC member of the NeurIPS 2019 conference (selected as one of the best reviewers).
- J. S. Dibangoye was PC member of the PKDD-ECML 2019 conference.
- J. S. Dibangoye was PC member of the JFPDA 2019 conference.
- O. Simonin was Senior PC member of the ECAI 2019 conference.
- O. Simonin was PC member of the IJCAI 2019 conference.
- O. Simonin was PC member of the AAAI 2020 conference.
- O. Simonin was PC member of the ICAPS 2019 conference - Robotics Track (29th International Conference on Automated Planning and Scheduling).
- O. Simonin was PC member of the ECMR 2019 conference (European Conference on Mobile Robots).

10.1.2.3. Reviewer

- A. Martinelli served, in quality of reviewer, for the following conferences: ICRA.
- O. Simonin served, in quality of reviewer, for the following conferences: IROS, ICRA.
- J. S. Dibangoye served, in quality of reviewer, for the following conferences: CDC, ACC, AAMAS, JFPDA.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- C. Laugier is Member of the Steering Committee of the journal IEEE Transaction on Intelligent Vehicles.
- C. Laugier is Senior Editor of the journal IEEE Transaction on Intelligent Vehicles
- C. Laugier is member of the Editorial Board of the journal IEEE ROBOMECH.
- O. Simonin was member of the Editorial Board of RIA revue (*Revue d'Intelligence Artificielle*), from 1/1/2018 to 1/06/2019. He is now member of the Editorial Board of the new revue ROIA (*Revue Ouverte d'Intelligence Artificielle*).

10.1.3.2. Reviewer - Reviewing Activities

- Agostino Martinelli served, in quality of reviewer, for the following journals: Transaction on Automatic Control, Automatica, Journal of Robust Control, Transaction on Robotics.
- O. Simonin was reviewer for SMCA journal (Systems, Man and Cybernetics: System).
- O. Simonin was reviewer for RIA revue (Revue d'Intelligence Artificielle).
- J. S. Dibangoye was reviewer for AIJ (Artificial Intelligence Journal).
- J. S. Dibangoye was reviewer for JAIR (Journal of Artificial Intelligence Research).
- J. S. Dibangoye was reviewer for JMLR (Journal of Machine Learning Research).
- J. S. Dibangoye was reviewer for TAC (IEEE Transaction on Automatic Control).

10.1.4. Invited Talks

- J. S. Dibangoye gave an invited talk at the Czech technical University in Prague, Czech Republic, in July 2019.
- J. S. Dibangoye gave an invited talk at the MAFTEC working group of GdR IA, in Caen, France, in February 2019.
- C. Laugier gave an invited talk at the conference IS Auto Europe 2019, Berlin, April 2019. Title: Embedded Sensor Fusion and Perception for Autonomous Vehicles.

- C. Laugier gave an invited talk at the conference IS Auto Europe 2019, Berlin, April 2019. Title: Embedded Sensor Fusion and Perception for Autonomous Vehicles.

- C. Laugier gave an invited talk at the Technological Conference Minalogic B2B 2019, Grenoble, May 2019. Title: Mixing Bayesian and AI approaches for Autonomous Driving.

- C. Laugier gave an invited keynote talk at the conference IEEE World Robotics Conference WRC 2019, Beijing, August 2019. Title: Impact of AI on Autonomous Driving.

- C. Laugier gave an invited Pioneer's talk at the conference IEEE/RSJ IROS 2019, Macau, November 2019. Title: A Journey in the history of Automated Driving.

- C. Laugier gave an invited keynote talk at the Cutting Edge Forum "Robotics, AI and ITS for Autonomous Driving", Conference IEEE/RSJ IROS 2019, Macau, November 2019. Title: Situation Awareness and Decision-making for Autonomous Driving.

- A. Martinelli gave the invited talk "Nonlinear Unknown Input Observability: the General Analytic Solution" on behalf of the Automatic Control Laboratory and the Institute for Dynamic Systems and Control at the ETHZ of Zurich, May, 6, 2019

- A. Martinelli gave invited talk "Nonlinear Unknown Input Observability: the General Analytic Solution" at La Sapienza University, Control lab, Rome, November, 29, 2019

- A. Spalanzani gave a talk that the "Journées Nationales de la Recherche en Robotique" (JNRR) in October 2019.

- O. Simonin gave an invited talk at the GdR Robotics Winter School: Robotica Principia "Decision making in robotics", Centre de recherche Inria Sophia Antipolis – Méditérranée, France. January 21-25, 2019, [55].

- O. Simonin gave an invited talk at the GdR IA2 Autumn School: "Introduction à la coordination multi-agent", CITI Lab/INSA Lyon.

10.1.5. Leadership within the Scientific Community

- C. Laugier is co-chair with Philippe Martinet, Marcelo Ang and Denis Wolf of the IEEE RAS Technical Committee on "Autonomous Ground Vehicles and Intelligent Transportation Systems (AGV-ITS)". He founded this IEEE RAS TC about 15 years ago, as a bridge between the RAS and ITS societies of IEEE.

- C. Laugier is member of the Steering Committee of IEEE/RSJ IROS.

- C. Laugier is member of the Scientific Committee of the French GDR Robotique.

- C. Laugier is member of several International Award Committees for IEEE RAS (Chapter Award Committee) and for IEEE/RSJ IROS.

- O. Simonin is member of the Board of AFIA "*Association Française pour l'Intelligence Artificielle*" (https://afia.asso.fr/).

10.1.6. Scientific Expertise

- O. Simonin was member of the HCERES committee of LIG lab.

- C. Laugier is member of the Advisory Board of ISR University of Coimbra.

- C. Laugier is Scientific Advisor for the Probayes SA and for Baidu China.

10.1.7. Research Administration

- C. Laugier is a member of several Ministerial and Regional French Committees on Robotics and Autonomous Cars.

- A. Spalanzani was a member of the committee of the ANR project selection in Mobilité et systèmes urbains durables.

- A. Spalanzani was a member of the GDR best Robotics PhD thesis committee.

- O. Simonin is member of the Auvergne-Rhone-Alpes Robotics cluster (Coboteam), for Inria and INSA Lyon entities.
- O. Simonin is member of the Scientific Council of the Digital League (Auvergne-Rhone-Alpes).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

INSA Lyon 5th year : O. Simonin, Resp. of the Robotics option (25 students): AI for Robotics, Multi-Robot Systems, Robotics Projects, 90h, M2, Telecom Dept., France.

INSA Lyon 3rd year : O. Simonin, Resp. of Introduction to Algorithmics, 32h (100 students), L3, Telecom Dept., France.

INSA Lyon 3rd year : Jilles S. Dibangoye, Algorithmics, 24h, L3, Dept. Telecom INSA Lyon, France.

INSA Lyon 3rd year : Jilles S. Dibangoye, WEB, 42h, L3, Dept. Telecom INSA Lyon, France.

INSA Lyon 3rd year : Jilles S. Dibangoye, Operating Systems, 56h, L3, Dept. Telecom INSA Lyon, France.

INSA Lyon 4rd year : Jilles S. Dibangoye, Operating Systems, 16h, Master, Dept. Telecom INSA Lyon, France.

INSA Lyon 5th year : Jilles S. Dibangoye, the Robotics option : AI for Robotics, Robotics projects, 8h, M2, Dept. Telecom INSA Lyon, France.

M2R MoSIG: A. Martinelli, Autonomous Robotics, 12h, ENSIMAG Grenoble.

Master : Laetitia Matignon, Multi-Agents and Self-* Systems, 10h TD, M2 Artificial Intelligence, Lyon 1 University, France.

Master : Laetitia Matignon, Multi-Robot Systems, 20h TD, 5th year of engineer, Polytech Lyon Informatics Department, France.

CPE Lyon 4-5th year : F. Jumel, resp. of the Robotics option, 400h M1/ M2, Dept. SN CPE Lyon France.

CPE Lyon 4-5th year : F. Jumel, 250h (robotic vision, cognitive science, Interface robot machine, deeplearning, Robotic frameworks, robotic plateforms, Kalman Filter)

10.2.2. Supervision

PhD: David Sierra Gonzalez, Towards Human-Like Prediction and Decision-Making for Automated Vehicles in Highway Scenarios, Université Grenoble Alpes, Defended April 1st 2019, C. Laugier, J. Dibangoye, E. Mazer (Inria Pervasive Interaction).

PhD: Pavan Vasishta, Building and Leveraging Prior Knowledge for Predicting Pedestrian Behaviour Around Autonomous Vehicles in Urban Environments, Université Grenoble Alpes, Defended September 30th 2019, A. Spalanzani and D. Vaufreydaz (Inria Pervasive Interaction).

PhD: Mathieu Barbier, Decision making for Intelligent Vehicles, Defended December 11st 2019, C. Laugier, O. Simonin and E. Mazer (Inria Pervasive Interaction).

PhD in progress: Mihai Popescu, Robot fleet mobility under communication constraints, O. Simonin, A. Spalanzani, F. Valois (CITI/Inria Agora).

PhD in progress: Guillaume Bono, Global-local Optimization Under Uncertainty for Goods Distribution Using a Fleet of Autonomous Vehicles, 2016, O. Simonin, J. Dibangoye, L. Matignon.

PhD in progress: Remy Grunblatt, Mobilité contrôlée dans les réseaux de drones autonomes", 2017, I. Guerrin-Lassous (Inria Dante) and O. Simonin.

PhD in progress: Maria Kabtoul, Proactive Navigation in dense crowds, A. Spalanzani and P. Martinet (Inria Chorale).

PhD in progress: Benoit Renault, Navigation coopérative et sociale de robots mobiles en environnement modifiable, O. Simonin and J. Saraydaryan.

PhD in progress: Edward Beeching, Large-scale automatic learning of autonomous agent behavior with structured deep reinforcement learning, C. Wolf, O. Simonin and J. Dibangoye.

PhD in progress: Manon Prédhumeau, Crowd simulation and autonomous vehicle, A. Spalanzani and J. Dugdale (LIG).

Starting PhD: Luiz Serafim-Guardini, Conduite Automobile Autonome : Utilisation de grilles d'occupation probabilistes dynamiques pour la planification contextualisée de trajectoire d'urgence à criticité minimale, A. Spalanzani, C. Laugier, P. Martinet (Inria Chorale).

Starting PhD: Alexandre Bonnefond, Large-scale automatic learning of autonomous agent behavior with structured deep reinforcement learning, O. Simonin and I. Guerrin-Lassous (Inria Dante).

Starting PhD: Estéban Carvalho, Safe and aggressive piloting of UAVs, 2019, Ahmad Hably (Gipsa-Lab), Nicolas Marchand (Gipsa-Lab), Jilles S. Dibangoye.

10.2.3. *Juries*

HDR :

O. Simonin was reviewer and member of the defense committee of the HDR of Charles Lesire (ONERA-ISAE), INP Toulouse, "Architectures délibératives pour la robotique autonome, des algorithmes au logiciel embarqué", March 5th, 2019.

O. Simonin was reviewer and member of the defense committee of the HDR of Abbas-Turki Abdeljalil (UTBM), Université de Haute-Alsace, "Méthodes, modèles et outils pour la régulation coopérative : Application aux véhicules autonomes et connectés", December 10th, 2019.

PhD thesis :

A. Spalanzani was reviewer and member of the defense committee of the PhD thesis of José Mendes Filho, école nationale supérieure de techniques avancées, December 19th, 2019.

O. Simonin was reviewer and member of the defense committee of the PhD thesis of Nicolas Cambier, Université de Technologie de Compiègne (UTC), October 23th, 2019.

O. Simonin was reviewer and member of the defense committee of the PhD thesis of Christophe Reymann, INSA Toulouse, July 8th, 2019.

O. Simonin was member of the defense committee of the PhD thesis of Rustem Abdrakhmanov, Université Clermont Auvergne, June 27th, 2019.

O. Simonin was member of the defense committee of the PhD thesis of Bilel Chenchana, Université de Limoges, March 22th, 2019.

Jilles S. Dibangoye was member of the defense committee of the PhD thesis of Jonathan Cohen, Univ. Caen, June 13th 2019.

C. Laugier and J. Dibangoye were members of the defense committee and co-supervisor of the PhD thesis of David Sierra Gonzalez, UGA Grenoble, April 1st 2019.

C. Laugier and O. Simonin were members of the defense committee and co-supervisor of the PhD thesis of Mathieu Barbier, UGA Grenoble, December 11th 2019.

10.3. Popularization

A. Spalanzani made a cross interview on women in robotics (https://www.inria.fr/centre/nancy/actualites/une-carriere-en-robotique-regards-croises-sur-des-parcours-d-exception)

10.3.1. *Articles and contents*

O. Simonin gave an interview to Le Monde Informatique - IT Tour à Lyon "*La voiture autonome : mythe ou réalité ?*" (https://www.lemondeinformatique.fr/actualites/lire-interview-video-olivier-simonin-professeur-inria-insa-lyonetgrenoble-77605.html) (26/09/19)

10.3.2. *Education*

A. Spalanzani made a seminar on "social autonomous vehicle navigation" in the scope of "cycle de conférences ISN".

<p style="text-align:center">**COML Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

- E. Dupoux & E. Dunbar: Co-organizers of the INTERSPEECH 2019 Zero Ressource Challenge Session.

9.1.1.2. Member of the Organizing Committees

- Executive committee of SIGMORPHON (Association for Computational Linguistics Special Interest Group, http://www.sigmorphon.org/).
- Executive committee of DARCLE http://www.darcle.org.

9.1.2. Scientific Events Selection

9.1.2.1. Reviewer

Invited editor for international conferences: Interspeech, NIPS, ACL, etc. (around 5-10 papers per conferences, 2 conferences per year)

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Member of the editorial board of: Mathématiques et Sciences Humaines, L'Année Psychologique, Frontiers in Psychology.

9.1.3.2. Reviewer - Reviewing Activities

Invited Reviewer for Frontiers in Psychology, Cognitive Science, Cognition, Transactions in Acoustics Signal Processing and Language, Speech Communication, etc. (around 4 papers per year)

9.1.4. Invited Talks

- Dec/4/2019, E. Dupoux, Invited Speaker, Symposium NeuroDevRob: Developmental AI, Cergy Pontoise
- Jul/15/2019, E. Dupoux, Invited Seminar, Microsoft Research: Inductive Biases and Language Emergence in Communicative Agents, Seattle
- Jun/26/2019, E. Dupoux, Invited Speaker, DARPA MCS Kickoff Meeting: Measuring Intuitive Physics Understanding in Artificial Systems, Washington DC
- May/26/2019, E. Dupoux, Invited Speaker, Facebook CogSci-AI Workshop: Learning speech like infants do, New York
- Mar/14/2019, E. Dupoux, GDR TAL, Artificial models of language acquisition, Paris
- Jan/13/2019, E. Dupoux, Invited Seminar, UTC Compiegne, Developmental AI

9.1.5. Scientific Expertise

E. Dupoux is invited expert for ERC, ANR, and other granting agencies, or tenure committees (around 2 per year).

9.1.6. Research Administration

E. Dupoux is on the Executive committee of the Foundation Cognition, the research programme IRIS-PSL "Sciences des Données et Données des Sciences", the industrial chair Almerys (2016-) and the collective organization DARCLE (http://www.darcle.org).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

E. Dupoux is co-director of the Cognitive Engineering track in the Cognitive Science Master (ENS, EHESS, Paris V).

- Master : E. Dupoux (with B. Sagot, ALMANACH, N. Zeghidour & R. Riad, COML), "Algorithms for speech and language processing", 30h, M2, (MVA), ENS Cachan, France
- Master : E. Dupoux, "Cognitive Engineering", 80h, M2, ITI-PSL, Paris France
- Doctorat : E. Dupoux, "Computational models of cognitive development", 32 h, Séminaire EHESS, Paris France
- Master: E. Dunbar, "Phonology" , 36 h, Master Sciences du Langage, Paris Diderot
- Master: E. Dunbar, "Statistics", 28h, Master Sciences du Langage, Paris Diderot
- Licence 3: E. Dunbar, "Phonology", 36h, Licence Sciences du Langage, Paris Diderot
- Licence 3: E. Dunbar, "Experimental methods", 36h, Licence Sciences du Langage, Paris Diderot

9.2.2. Supervision

- defended PhD: Neil Zeghidour, Learning speech features from raw signals, Feb 2015-13 Mar 2019, co-advised E. Dupoux, N. Usunier (Facebook-CIFRE)
- PhD in progress : Rahma Chaabouni, Language learning in artificial agents, Sept 2017, co-advised E. Dupoux, M. Baroni (Facebook-CIFRE)
- PhD in progress : Ronan Riochet, Learning models of intuitive physics, Sept 2017, co-advised E. Dupoux, I. Laptev, J. Sivic
- PhD in progress : Rachid Riad, "Speech technology for biomarkers in neurodegenerative diseases" , Sept 2018, co-advised E. Dupoux, A.-C. Bachoud-Levi
- PhD in progress : Robin Algayres "Audio word embeddings and word segmentation" , from Oct 2019, co-advised E. Dupoux, B. Sagot
- PhD in progress: Juliette Millet, "Modeling L2 Speech perception", from Sept 2018, advised E. Dunbar Bachoud-Lévi

9.2.3. Juries

E. Dupoux participated in the HDR jury of Jacques Cartier Jul 3, 2019.

9.3. Popularization

E. Dupoux presented the startup project BabyCloud at the CNRS innovatives SHS Salon, May 14-16, Lille.

DEFROST Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Gang Zheng is member of Bureau ED (Ecole Doctorale) SPI 072 in the domain of AGITSI (Automatique, Génie Informatique Traitement du Signal et des Images), 2020-2024.
- Gang Zheng is member of Bureau Scientifique (ex-BCP) of Inria Lille – Nord Europe, from February 2019.
- Gang Zheng was a vice-chair of the IFAC Technical Committee "Social Impact of Automation", International Federation of Automatic Control, TC9.2, till 2019
- Gang Zheng is co-chair of the working group "Commande et pilotage en environnement incertain" of GRAISYHM
- Christian Duriez was chair of the workshop " Modeling, Simulation and Control of Deformable Robots on SOFA Framework" organized during Robosoft Conference 2019 https://team.inria.fr/defrost/software/defrost-platform-modeling-simulation-and-control-of-deformable-robots-on-sofa-framework/

10.1.1.2. Member of the Organizing Committees

- This year, Stefan Escaida Navarro was a Co-Organizer of the *2nd Workshop on Proximity Perception in Robotics* at *IROS 2019* in Macao, China. [0]
- Gang Zheng, Associate Editor, SIAM CT19, Chengdu, China (SIAM Conference of Control & Its Applications 2019)
- Christian Duriez is member of the organizing committee of ICRA 2020 (in Paris), chair of Social Media and Community.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Gang Zheng is IPC member of SIAM19, ICSRT19, ICFCTA19, ICRAI19, AITC19, APCRAS20, ICSRT20, ETFA20, ICSC20.
- Jeremie Dequidt is IPC member of International Symposium on Visual Computing 2019
- Christian Duriez is IPC of Robosoft 2019 and Robosoft 2020

10.1.2.2. Reviewer

Alexandre Kruszewski was revewier for:

- 2020 21st IFAC World Congress
- 2020 3rd IEEE International Conference on Soft Robotics
- 2020 American Control Conference
- 2019 IEEE/RSJ International Conference on Intelligent Robots and Systems
- 2019 IEEE Conference on Decision and Control
- 2019 IEEE International Conference on Fuzzy Systems
- 2019 Chinese Control and Decison Conference

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[0]https://www.proxelsandtaxels.org/en/

Olivier Goury was reviewer for:

- 2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
- IEEE International Conference on Soft Robotics (ROBOSOFT 2020)

Stefan Escaida Navarro was reviewer for:

- 2020 IEEE International Conference on Robotics and Automation (ICRA 2020)
- 2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2019)

Jeremie Dequidt was reviewer for:

- 2019 International Symposium on Visual Computing
- 2020 IEEE Conference on Virtual Reality and 3D User Interfaces
- 2019 IEEE International Conference on Robotics and Automation (ICRA 2019)
- 2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2019)

Christian Duriez was reviewer for:

- 2019 IEEE International Conference on Robotics and Automation (ICRA 2019)
- 2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2019)
- Conference Robotics Science and System (RSS 2019)
- Siggraph Conference 2019

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Christian Duriez is associate editor of:

- IEEE Transactions on Haptics
- IEEE Robotics and Automation Letters

10.1.3.2. Reviewer - Reviewing Activities

Olivier Goury was reviewer for:

- ACM CHI Conference on Human Factors in Computing Systems
- International Journal of Robotics Research (IJRR)
- IEEE Robotics and Automation Letters

Stefan Escaida Navarro was reviewer for:

- IEEE Robotics and Automation Letters (RA-L)
- IEEE Sensors Journal

Alexandre Kruszewski was revewier for:

- IEEE Transaction on Fuzzy Systems
- IEEE Robotics and Automation Letters
- IEEE Transactions on Vehicular Technology
- International Journal of Robotics Research
- Systems & Control Letters
- Fuzzy Sets and Systems
- IET Control Theory & Applications

Jeremie Dequidt was reviewer for:

- IEEE Transaction on Haptics
- IEEE Robotics and Automation
- IEEE Robotics and Automation Letters

Christian Duriez was reviewer for:

- Nature Robotics
- International Journal of Robotic Research
- IEEE Robotics and Automation Letters
- IEEE Transactions on Graphics

10.1.4. Invited Talks

Christian Duriez was invited for:

- Keynote at IEEE Robosoft Conference
- Keynote during scientific day of FEMTO (Besançon)
- Keynote & Practice during the 9th Summer School on Surgical Robotics
- Keynote during the FOOR 2019 (Forum Ouvert Oeuvre et Recherche) in Lille

10.1.5. Scientific Expertise

Christian Duriez is expert of the European Community for monitoring the FET project HybridHeart

10.1.6. Research Administration

- Christian Duriez has been nominated Director of the Inria Lille – Nord Europe center for an interim of 3 months (July to September). He is also the president of the "Commission des Emplois de Recherche" (Research Jobs Commission)
- Olivier Goury is an elected member of the "Comité de centre" and a member of the "Comité de développement technologique" (CDT) at Inria Lille – Nord Europe.
- Alexandre Kruszewski is member of the Laboratory council (CRIStAL).
- Damien Marchal is lead of the "Pôle d'Appui au Développement et à la Recherche" of the CRIStAL Laboratory.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Engineering cycle: Walid Amehri, Start & Go Arts et Sciences, 24h, level L3, Centrale Lille.

Engineering cycle: Walid Amehri, Start & Go Conception et Environement, 10h, level L3, Centrale Lille.

Engineering cycle: Walid Amehri, Automatique IE3, 20h, level L3, Centrale Lille.

Engineering cycle: Alexandre Kruszewski, 14 modules (automatic control, numeric control, embedded systems, robotics etc.), ≈250h, level (L3, M1, M2), Centrale Lille

Engineering cycle: Jeremie Dequidt 6 modules (Programming, Software Engineering, Embedded Systems, Databases, Medical Simulation etc.) ≈350h, level (L3, M1, M2), Polytech Lille

Master: Christian Duriez, Soft robotics, 24h, M2, Graduate degree en intelligence artificielle à l'Ecole Polytechnique (Palaiseau)

Master: Christian Duriez, Interactive simulation, 20h, M2, Master Image Visualisation Interaction, Université de Lille

10.2.2. Supervision

PhD: Eulalie Coevoet, Optimization Based Inverse Model of Soft Robots With Contact Handling, Université de Lille, 9/01/2019, C. Duriez

PhD: Zhongkai Zhang, Vision-based calibration, position control and force sensing for soft robots, Université de Lille, 10/01/2019, J. Dequidt, C. Duriez

PhD: Maxime Thieffry, Modélisation et contrôle de robots déformables à grande vitesse, UPHF, 16/10/2019, A. Kruszewski, C. Duriez, T.M. Guerra

PhD in progress: Walid Amehri, Workspace analysis of soft robots, G. Zheng, A. Kruszewski

PhD in progress: Ke Wu, Control of soft robot under constraints, G. Zheng

PhD in progress: Pierre Schegg, Catheter Navigation using Reinforcement Learning, J. Dequidt and C. Duriez

PhD in progress: Félix Vanneste, Design and simulation of Soft Robots made of mesostructured materials, 01/12/2018, C Duriez, O. Goury

10.2.3. *Juries*

Gang Zheng has participated the following juries of thesis:

- Imen Mrad, Observabilité et inversion à gauche des systèmes dynamiques hybrides, defended at 16/12/2019, Université de Cergy-Pontoise (Reviewer);

- Yanqiao Wei, Non-asymptotic and robust fractional order differentiators using generalized modulating functions, defended at 15/11/2019, INSA Val de Loire (Examinator);

- Saber Laamiri, Commande des systèmes électriques: Machines synchrones et convertisseurs multi-niveaux, defended at 27/09/2019, Ecole centrale de Nantes (Examinator).

Christian Duriez was member of the following juries of PhD thesis:

- Margaret Koehler, Model-Based Design And Control Of Deformable Robots And Haptic Devices, Stanford University, USA, defended on the 14th of November 2019 (Reviewer)

- François Schmitt, Méthodes et procédés pour l'assistance à la chirurgie laparoscopique par comanipulation, University of Strasbourg, defended the 30th of September 2019 (Reviewer)

- Quentin Peyron, Concept de robot à tube concentrique magnétique: introduction et analyse, defended the 5th of December 2019 (President of the Jury)

Christian Duriez was member of the following juries for Habilitation thesis:

- Sinan Haliyo, Interactions Multi-Echelles, defended the 6th of December 2019 (Reviewer)

- Guillaume Caron, Vision Robotique Directe, defended the 10th of December 2019 (President of the Jury)

10.3. Popularization

- http://handsonsoftrobotics.lille.inria.fr/

- SIDO 2019: SIDO is leading European Solutions and Technologies event for IoT, Artificial Intelligence and Robotics for strategic decision-makers in innovation and business operations. Jeremie Dequidt has presented current research works arund Soft Robotics.

10.3.1. *Interventions*

- Fête de la science 2019: Bruno Carrez and Olivier Goury took part in the " village des sciences" at the "Gare Saint-Sauveur" in Lille city center to present soft robots to several groups of students from middle school and high school which represents about 150 children over 2 days between October 10th and 11th 2019.

- FOSDEM 2019 Brussels: its an open-software manifestation which happen every years during 2 days. Some people of our team (Damiens Marchal, Eulalie Coevoet, Bruno Marques, Bruno Carrez and Félix Vanneste) went there to help the SOFA consortium to make some advertisement of our simulation tools.

- ISN intervention: Olivier Goury presented the field of soft robotics to high school students taking a Computer Science option (Informatiques sciences du numérique) and exchanged about the school projects on March the 20th 2019.

- Défi Robotique at Lycée Baggio: Olivier Goury took part in the Défi Robotique at Lycée Baggio in which teams of middle school, high school, preparatory classes and engineering students have 24 hours to solve a robotics challenge. Olivier Goury gave a conference on Soft Robotics and was a member of jury.

- Journée de la recherche Centrale Lille: Alexandre Kruszewski, Thor Morales-Bieze and Bruno Carrez presented the research activities (with live demos) in a showroom dedicated to the promotion of the scientific activities of the Laboratory of the campus.

EX-SITU Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Member of the Conference Program Committees

- ACM CHI 2020, *ACM CHI Conference on Human Factors in Computing Systems*: Theophanis Tsandilas
- ACM UIST 2019, *ACM Symposium on User Interface Software and Technology*: Michel Beaudouin-Lafon, Wendy Mackay
- ACM VRST 2019, *ACM Symposium on Virtual Reality Software and Technology*: Cédric Fleury
- EuroVR 2019, *EuroVR International Conference*: Cédric Fleury
- MOCO 2019, *International Conference on Movement and Computing*: Sarah Fdili Alaoui, Baptiste Caramiaux
- IHM 2019, *Conférence Francophone d'Interaction Homme-Machine*: Sarah Fdili Alaoui

9.1.1.2. Reviewer

- ACM CHI 2019-20, *ACM CHI Conference on Human Factors in Computing Systems*: Sarah Fdili Alaoui, Cédric Fleury, Baptiste Caramiaux, Michel Beaudouin-Lafon, Wendy Mackay, Julien Gori, Alexander Eiselmayer
- ACM UIST 2019, *ACM Symposium on User Interface Software and Technology*: Theophanis Tsandilas, Cédric Fleury, Julien Gori
- ACM DIS 2019, *Designing Interactive Systems*: Baptiste Caramiaux, Sarah Fdili Alaoui
- ACM ACII, : Baptiste Caramiaux
- IEEE VIS 2019, *IEEE Visualization Conference*: Theophanis Tsandilas, Michel Beaudouin-Lafon
- IEEE VR 2019-20, *Virtual Reality Conference*: Cédric Fleury
- ACM ISS 2019, *ACM International Conference on Interactive Surfaces and Spaces*: Theophanis Tsandilas
- ACM MobileHCI (2019) *The Conference on Human-Computer Interaction with Mobile Devices and Services*: Julien Gori
- ACM NordiCHI (2018) *The Nordic Conference on Human-Computer Interaction*: Julien Gori
- EURASP Eusipco (2019) *European Signal Processing Conference*: Julien Gori
- IEEE SMC (2018) *IEEE International Conference on Systems, Man, and Cybernetics*: Julien Gori
- ACM CHIPLAY 2019, *ACM SIGCHI Annual Symposium on Computer-Human Interaction in Play*: Viktor Gustafsson
- IHM 2019, *Conférence Francophone d'Interaction Homme-Machine*: Theophanis Tsandilas, Wendy Mackay

9.1.2. Journal

9.1.2.1. Member of Editorial Boards

- Editor for the Human-Computer Interaction area of the ACM Books Series (published with Morgan & Claypool Publishers): Michel Beaudouin-Lafon (2013-)

- TOCHI, *Transactions on Computer Human Interaction*, ACM: Michel Beaudouin-Lafon (2009-), Wendy Mackay (2016-), Baptiste Caramiaux (2019-)
- PloS ONE: Baptiste Caramiaux (2018-)
- JIPS, *Journal d'Interaction Personne-Système*, AFIHM: Michel Beaudouin-Lafon (2009-)
- Frontiers in *Virtual Reality*: Cédric Fleury (2019-)

9.1.2.2. Reviewer - Reviewing Activities

- TOCHI, *Transactions on Computer Human Interaction*, ACM: Theophanis Tsandilas, Julien Gori
- ACM Books Series: Theophanis Tsandilas
- Frontiers in *Robotics and AI*, Virtual Environments section: Cédric Fleury

9.1.3. Invited Talks

- CIO Workshop, Sanderberg, Denmark *Generative Theories of Interaction (in the making)*, 23 January 2019: Michel Beaudouin-Lafon, Susanne Bødker, and Wendy Mackay
- Colloque CNRS Humain et Numérique en Interaction, Paris, *Aura-t-on encore besoin d'interagir avec des ordinateurs ?*, February 2019: Michel Beaudouin-Lafon
- Stanford University, Palo Alto CA *Human-Computer Partnerships*, 27 February 2019: Wendy Mackay
- IHM & AI Workshop, Paris *Partenariats Homme-Machines*, 14 March 2019: Wendy Mackay
- DYSTOPIA, Paris, *L'IA nous rendra-t-elle inhumains ?*, March 2019: Michel Beaudouin-Lafon
- Stanford University, *Unified Principles of Interaction*, March 2019: Michel Beaudouin-Lafon
- CHI 2019 Panel, Glasgow, Scotland *Rigor, Relevance and Impact: The Tensions and Trade-Offs Between Research in the Lab and in the Wild*, April 2019: Wendy Mackay
- MIT CSAIL, *Unified Principles of Interaction*, May 2019: Michel Beaudouin-Lafon
- SystemX, Paris *Partenariats Homme-Machines*, 29 May 2019: Wendy Mackay
- ESPGG, Open Lab Days, *Human-centred Machine Learning in Creative Applications*, June 2019: Baptiste Caramiaux
- University of London Institute, *AI in the Media and Creative Industries*, June 2019: Baptiste Caramiaux
- Aachen University Graduation Keynote *Human-Computer Partnerships*, 17 June 2019: Wendy Mackay
- Creative Industries & AI, Paris *Human-Computer Partnerships*, 21 June 2019: Wendy Mackay
- User Interfaces group, Aalto University, Finland, *A new take on the speed-accuracy tradeoff of Aimed Movements – Implications and Applications for HCI*, October 2019: Julien Gori
- ACM UIST Symposium, New Orleans, Visions talk *A World Without Apps*, October 2019: Michel Beaudouin-Lafon
- AI & Gender Equality Seminar, UNESCO, Paris *Does AI introduce new risks and opportunities for gender equality?*, 2 November, 2019: Wendy Mackay
- LIMSI, *Human-centred Machine Learning*, Novembre 2019: Baptiste Caramiaux
- University of Toronto TUX Sanders Series Talk, *Unified Principles of Interaction*, November 2019: Michel Beaudouin-Lafon
- IRCAM Paris, *State of The art of tools supporting dance learning*, ELEMENT workshop, 2019: Sarah Fdili Alaoui
- ENSAD, Paris, *Live Coding with interactive movement based technologies*, Virtual creativity collective realities, 2019: Sarah Fdili Alaoui

- Aarhus, Danemark, *Live Coding with interactive movement based technologies*, Performing Art Platform, 2019: Sarah Fdili Alaoui
- Aarhus University, Danemark, *Crafting dance and technologies*, 2019: Sarah Fdili Alaoui
- Conservatory of Vicenza, Italy, Workshop on *Music dance and interaction*, 2019: Sarah Fdili Alaoui
- Conservatory of Vicenza, Italy, Master class of *Creation with technologies*, 2019: Sarah Fdili Alaoui
- Stereolux, Nantes, France, Workshop on *Live Coding with interactive movement based technologies* at LAB-DAYS - MovA, 2019: Sarah Fdili Alaoui

9.1.4. Leadership within the Scientific Community

- Information Science and Technology (STIC) Department, Université Paris-Saclay: Michel Beauouin-Lafon (chair since June 2018), Wendy Mackay (member)
- Research division, Université Paris-Saclay: Michel Beaudouin-Lafon (advisor for Digital Sciences since June 2018)
- Digiteo RTRA research network, Université Paris-Saclay: Michel Beauouin-Lafon (director since June 2018)
- Computer Science Department, Université Paris-Sud: Michel Beaudouin-Lafon (vice-President for research)
- ACM Technology Policy Council: Michel Beaudouin-Lafon (vice-chair)

9.1.5. Scientific Expertise

International

- HCERES Evaluation: Wendy MAckay, external expert
- NSERC Evaluation: Michel Beaudouin-Lafon, external expert
- ACM SIGCHI "Lifetime Service Award" committee chair: Michel Beaudouin-Lafon
- ACM "Policy Award" committee adjunct chair: Michel Beaudouin-Lafon

National

- CNRS INS2I "Cellule ERC": Michel Beaudouin-Lafon, member
- Agence Nationale de la Recherche (ANR), Appel à projets génériques: Sarah Fdili Alaoui, reviewer

9.1.6. Research Administration

Telecom ParisTech, "Comité de la recherche": Michel Beaudouin-Lafon (member)

"Conseil de Laboratoire", LRI: Wendy Mackay, Cédric Fleury (members)

"Commission consultatives paritaires (CCP)" Inria: Wendy Mackay (President)

"Conseil Scientifique", LRI: Michel Beaudouin-Lafon (member)

CCSU, "Commission Consultative de Spécialistes de l'Université", Université Paris-Sud: Michel Beaudouin-Lafon, Wendy Mackay (members)

"Commission Locaux", LRI: Theophanis Tsandilas (member)

"Commission Scientifique", Inria: Theophanis Tsandilas (member)

"Jury de recrutement, Maître de Conférences", Télécom ParisTech: Michel Beaudouin-Lafon (member)

"Assessment committee for associate professors", Aarhus University: Michel Beaudouin-Lafon (member)

"Comité de sélection, Maître de Conférences", Université Paris-Sud: Cédric Fleury

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

International Masters: Theophanis Tsandilas, *Probabilities and Statistics*, 32h, M1, Univ. Paris-Saclay

Interaction & HCID Masters & Innovation and Entrepreneurship Minor: Sarah Fdili Alaoui, Coordinator

HCID Masters: Sarah Fdili Alaoui, *Innovation & Entrepreneurship Advanced*, 15h, M2, Univ. Paris-Sud

HCID Masters: Michel Beaudouin-Lafon, Wendy Mackay, *Fundamentals of Situated Interaction*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Sarah Fdili Alaoui, *Creative Design*, 27h, M1 et M2, Univ. Paris-Sud

Interaction & HCID Masters: Michel Beaudouin-Lafon, *Fundamentals of Human-Computer Interaction*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Michel Beaudouin-Lafon & Cédric Fleury, *Groupware and Collaborative Interaction*, 31.5 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Wendy Mackay, *Career Seminar* 6 hrs, M2, Univ. Paris-Sud

Interaction & HCID Masters: Wendy Mackay, *Design of Interactive Systems*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Wendy Mackay, *Advanced Design of Interactive Systems*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Baptiste Caramiaux, *Gestural and Mobile Interaction*, 24 hrs, M1/M2, Univ. Paris-Sud

Polytech: Cédric Fleury, *Projet Java-Graphique-IHM*, 24 hrs, 3st year, Univ. Paris-Sud

Polytech: Cédric Fleury, *Interaction Homme-Machine*, 18 hrs, 3st year, Univ. Paris-Sud

Polytech: Cédric Fleury, *Option Réalité Virtuelle*, 56 hrs, 5th year, Univ. Paris-Sud

Polytech: Cédric Fleury, *Réalité Virtuelle et Interaction*, 48 hrs, "Apprentis" 5th year, Univ. Paris-Sud

9.2.2. Supervision

PhD students

PhD: Philip Tchernavskij, *Designing and Programming Malleable Software*, Université Paris-Saclay, 3 December 2019. Advisors: Michel Beaudouin-Lafon

PhD: Yujiro Okuya, *CAD Modification Techniques for Design Reviews on Heterogeneous Interactive Systems*, 8 November 2019. Advisors: Patrick Bourdot (LIMSI-CNRS) & Cédric Fleury

PhD: Anna Gogolou, *Iterative and Expressive Querying for Big Data Series*, 15 November 2019. Advisors: Anastasia Bezerianos (ILDA-Inria), Themis Palpanas (Université Paris-Descartes) & Theophanis Tsandilas

PhD in progress: Stacy (Shu-Yuan) Hsueh, *Embodied design for Human-Computer Co-creation*, November 2015. Advisors: Wendy Mackay & Sarah Fdili Alaoui

PhD in progress: Jean-Philippe Rivière, *Embodied Design for Human-Computer Partnership in Learning Contexts*, October 2017. Advisors: Wendy Mackay, Sarah Fdili Alaoui & Baptiste Caramiaux

PhD in progress: Yiran Zhang, *Telepresence for remote and heterogeneous Collaborative Virtual Environments*, October 2017. Advisors: Patrick Bourdot (LIMSI-CNRS) & Cédric Fleury

PhD in progress: Téo Sanchez, *Co-Learning in Interactive Systems*, September 2018. Advisors: Baptiste Caramiaux & Wendy Mackay

PhD in progress: Elizabeth Walton, *Inclusive Design in Embodied Interaction*, November 2018. Advisor: Wendy Mackay

PhD in progress: Miguel Renom, *Theoretical bases of human tool use in digital environments*, October 2018. Advisors: Michel Beaudouin-Lafon & Baptiste Caramiaux

PhD in progress: Han Han, *Participatory design of digital environments based on interaction substrates*, October 2018. Advisor: Michel Beaudouin-Lafon

PhD in progress: Viktor Gustafsson, *Co-adaptive Instruments fo Game Design*, October 2018. Advisor: Wendy Mackay

PhD in progress: Yi Zhang, *Generative Design using Instrumental Interaction, Substrates and Co-adaptive Systems*, October 2018. Advisor: Wendy Mackay

PhD in progress: Martin Tricaud, *Instruments and Substrates for Procedural Creation Tools*, October 2019. Advisor: Michel Beaudouin-Lafon

PhD in progress: Arthur Fages, *Collaborative 3D Modeling in Augmented Reality Environments*, December 2019. Advisors: Cédric Fleury & Theophanis Tsandilas

Masters students

Clément Sauvard, "*Designing 3D Scenes with multiple AR views*": Cédric Fleury & Theophanis Tsandilas

Cyril Crebouw, "*Remote collaboration across wall-sized displays*": Cédric Fleury & Michel Beaudouin-Lafon

Ellen Sigloch, "*Prototips website*": Wendy Mackay

Yuyan Jing, "*Coadaptive Map: A Design tool for GIS users*": Wendy Mackay

Alina Nicolae, "*TweakyTemplate: Reifying template tweaks for book design*": Wendy Mackay

Wuji Geng, "*Studies of the Interaction Museum: The gap between HCI research and practice*": Wendy Mackay

Xi Hu, "*Motion Palette: Motion Exploration Support Tool for Dynamic Visual Effects*": Wendy Mackay

Siba Siddique, "*Investigating User Decision in Human-AI Interaction*": Baptiste Caramiaux

9.2.3. Juries

PhD theses

Sylvain Pauchet, University of Toulouse/ENAC "*From surface to surface: Transformations de surface tactile pour l'interaction incarnée dans le cockpit*" (advisor: Stéphane Conversy): Wendy Mackay, reviewer

Hugo Scurto, IRCAM/Sorbonne University "*Designing With Machine Learning for Interactive Music Dispositifs*" (advisor: Frédéric Bevilacqua): Wendy Mackay, reviewer

Emmanouil Giannisakis, Télécom ParisTech, "*Promoting and characterizing the menu to keyboard shortcuts transition*" (advisor: Gilles Bailly): Theophanis Tsandilas, examiner

Julien Casarin, Université de Strasbourg, "*Proposition d'un protocole web pour la collaboration multi-support en environnement 3D*" (advisor: Dominique Bechman): Michel Beaudouin-Lafon, president

Emmanouil Potetsianakis, Télécom ParisTech, "*Amélioration des applications vidéo grâce aux métadonnées temporelles*" (advisor: Jean Le Feuvre): Michel Beaudouin-Lafon, examiner

Maxime Garcia, Université Grenoble Alpes, Inria Rhones Alpes, "*Transfert d'animation : animer des personnages virtuels par le jeu et le mime*" (advisor: Rémi Ronfard): Sarah Fdili Alaoui, invited examiner

9.3. Popularization

9.3.1. Articles and contents

- Radio show "Les P'tits Bateaux" on France Inter public radio: Michel Beaudouin-Lafon (interviews in response to children questions on 5 May, 30 June, 18 August, 24 November 2019)

9.3.2. Education

- Chapter about the Web in a textbook for high-school students: Michel Beaudouin-Lafon [36]

9.3.3. Interventions

- Presentation of research work on dance movement during the dance show "Frame(d)", at Micadance (25 May 2019) and SUAPS Paris-Sud (June 2019): Rivière Jean-Philippe

- Université Paris-Saclay Learning Center: art-science project with photographer Didier Goupy presenting the portraits of Ph.D students of Université Paris-Saclay. Ph.D. graduation ceremony, Université Paris-Saclay, June 2019; Fête de la Science, Gif-sur-Yvette, October 2019

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FLOWERS Project-Team

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10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

PY Oudeyer was co-organizer of the Workshop on Exploration in Reinforcement Learning (ICML 19), https:// sites.google.com/view/erl-2019/organizers.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

PY Oudeyer was member of the program committee of IEEE International Conference on Developmental Learning and Epigenetic Robotics (ICDL-Epirob).

Natalia Díaz Rodríguez, steering committee and reviewer of CONTLEARN Workshop at CVPR2020 Workshop on Continual Learning in Computer Vision, Seattle, US.

10.1.2.2. Reviewer

PY Oudeyer was a reviewer for: Workshop on Exploration in Reinforcement Learning (ICML 19).

Hélène Sauzéon reviewed a conference paper for CHI 2020.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

PY Oudeyer was editor of the IEEE Newsletter on Cognitive and Developmental Systems.

PY Oudeyer was associate editor of: IEEE Transactions on Cognitive and Developmental Systems and Frontiers in Neurorobotics.

10.1.3.2. Reviewer - Reviewing Activities

Clément Moulin-Frier reviewed an article for *Journal of Artificial Intelligence Research (JAIR)*.

PY Oudeyer reviewed for the journals: Journal of Artificial Intelligence Research, Cognitive Science, Nature Science Reports.

Hélène Sauzéon reviewed 6 articles for Memory & Cognition (M&C), Annals of Physical and Rehabilitative Medecine (APRM), Psychonomic Bulletin, Motivation & Cognition (MC); Cognition & Emotion (CE)

Natalia Díaz Rodríguez reviewed at Frontiers in Robotics and AI, Transactions on Emerging Telecommunications Technologies, IEEE Robotics & Automation Magazine, Neurocomputing, Robotics and Autonomous Systems.

Cédric Colas reviewed an article for the Robotics Science and Systems (RSS) conference.

10.1.4. Invited Talks

Clément Moulin-Frier gave invited talks at the *Journées Nationales de Recherche en Robotics (JNRR)* in Vittel (France) and in the *Journée GT8 "Robotique et Neurosciences"* du GDR Robotique in Bordeaux (France).

Clément Moulin-Frier and Natalia Díaz-Rodríguez gave a talk and participated, resp. in the workshop *Open Artificial Intelligence: From big data to smart data* at the *Centre de Recherche Interdisciplinaire (CRI)* in Paris (France) 13-15 Nov. 2019.

PY Oudeyer gave a keynote talk at International Conference on Learning Representations (ICLR 2019), New-Orleans, May 2019, https://iclr.cc/Conferences/2019/Schedule?showEvent=1141.

PY Oudeyer gave a keynote talk at ACM International Conference on Virtual Agents (ACM IVA 2019), Paris, on developmental machine learning https://iva2019.sciencesconf.org/.

PY Oudeyer gave an invited talk at the Deep Learning Summit (ReWork 2019), London, on curiosity-driven artificial intelligence, https://www.re-work.co/events/deep-learning-summit-london-2019/speakers/.

PY Oudeyer gave an invited talk at the conference on Reinforcement Learning and Decision Making (RLDM 2019), Montreal, on curiosity-driven developmental learning, http://rldm.org/invited-speakers/.

PY Oudeyer gave an invited talk at the Workshop on Curiosity for Decision Making at RLDM 2019, Montreal, https://sites.google.com/view/rldm-curiosity.

PY Oudeyer gave an invited talk at the HUMAINT conference in Séville, on "Developmental Autonomous Learning: AI, Cognitive Sciences and EdTech", 2019.

PY Oudeyer gave an invited talk at the workshop "AI and cognitive systems in Aquitaine", ENSC/Chaire STAH, Bordeaux, 2019.

PY Oudeyer gave an invited talk at the workshop "Task-agnostic reinforcement learning" at ICLR 2019, https://tarl2019.github.io, on developmental autonomous learning.

PY Oudeyer gave an invited talk at the workshop on Curiosity, Explanation and Exploration at Princeton University, 2019, on models of curiosity-driven learning in humans and machines.

PY Oudeyer gave an invited talk at the workshop on AI and Machine Learning, Telecom ParisTech, 2019, on developmental machine learning, https://workshopmlai.wp.imt.fr.

PY Oudeyer gave an invited talk at Académie de Médecine, Paris, 2019, on models of curiosity-driven learning and educational technologies.

PY Oudeyer gave an invited talk at workshop on Self and Sense of Agency, University Paris Descartes, nov. 2019, on models of curiosity-driven learning in humans and machines.

Hélène Sauzéon gave three invited talks at : 1) the conference on « Neuropsychologie clinique et technologies » - SNLF 2019, Paris, dec., 2-5 ; 2) Annual cycle of conference of Hôpital Salpêtrière, dec., 3; 3) Computer science Dpt. Of the University of Beijing, Beijing, July, 22-23.

Chris Reinke gave three invited talks at: 1) Okinawa Institute of Science and Technology, May 2019, on machine learning methods for the automated discovery of behaviors in physical and chemical systems; 2) LOMA Theory Day at Bordeaux, July 2019, on machine learning in physics; 3) Inria Grenoble, December 2019, on using cognitive models for artificial intelligence

N. Díaz Rodríguez gave an invited keynote (Continual Learning and Robotics: An Overview) and was a panelist at the ICLR workshop on multi-task and lifelong reinforcement learning https://sites.google.com/view/mtlrl

N. Díaz Rodríguez gave a guest talk at the Network of Young Researchers - Neuro Day NYR, Continual learning and Robotics, Paris 7th June 2019[0].

N. Díaz Rodríguez moderated a round table tomorrow in Paris: *WHEN AI AND BIG DATA MEET LIFE SCIENCES: ADVANCES IN RESEARCH AND ETHICAL QUESTIONS*https://yrls.fr/roundtable/ at Institut Imagine, Paris.

10.1.5. Leadership within the Scientific Community

Hélène Sauzéon was member of the ANR committe of « Technologie & Health »

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[0] https://ifm-institute.fr/fr/accueil/actualites/470-network-of-young-researchers-neuro-day-7th-june-20?fbclid=IwAR03u8T-opoede5hnCQx_QSphsJPC77YCrmnuNZH8c5XiBoRH9kgotLvYyw

10.1.6. Scientific Expertise

PY Oudeyer was a reviewer for the European Commission (FET program).

Hélène Sauzéon was a reviewer for the ANR call on International and european and scientific networks.

10.1.7. Research Administration

PY Oudeyer has been head of the Flowers team and member of piloting committees of consortium projects Adaptiv'Maths and Perseverons (eFran) on educational technologies.

Hélène Sauzéon was head of HACS team (BPH Lab, Inserm-UB), and thus member of directory committe of « Handicap » IFR (Inserm).

Helène Sauzéon is member of directory committe of the « centre d'excellence BIND », and she managed the Industrial Innovation and transfer sub-committee.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

PY Oudeyer gave a course on developmental reinforcement learning at ENSEIRB master on AI and machine learning (3h), nov. 2019.

PY Oudeyer gave a course on developmental learning at CogMaster cognitive science master (3h), nov. 2019.

PY Oudeyer gave a course on developmental learning at ENSC/ENSEIRB "option robot" master (3h), dec. 2019.

During the latest academic year, Hélène Sauzéon teached 96h in the BS. and master degrees in cognitive science (Department of Mathematics & interaction, University of Bordeaux). She was (co-)responsible of 9 teaching units (3 in BS et 6 in Master).

N Díaz Rodríguez taught, at ENSTA, a total of 3.25 h in ROB313, 27h at IN104, 10.5 at IN102, 21h at IA301. She also gave 42h at IG.2410 at the engineering school ISEP, and 3h course on Continual Learning and State Representation Learning at the reinforcement learning course at ENSEIRB master on AI and machine learning (3h), nov. 2019.

Didier Roy gave courses on computer science basics, and on computer science, robotics and AI activities for education at Canton de Vaud teachers.

10.2.2. Supervision

- PhD defended: Sébastien Forestier, "Intrinsically Motivated Goal Exploration in Child Development and Artificial Intelligence: Learning and Development of Speech and Tool Use", University of Bordeaux (supervised by PY Oudeyer).
- PhD defended: Thibault Desprez, "Conception et évaluation de kits robotiques pédagogiques", University of Bordeaux (supervisors: PY. Oudeyer and D. Roy)
- PhD in progress : Rémy Portelas, "Teacher algorithms for curriculum learning in Deep RL", beg. in sept. 2018 (supervisors: PY Oudeyer and K Hoffmann)
- PhD in progress: Cédric Colas, "Intrinsically Motivated Deep RL", beg. in sept. 2017 (supervisors: PY Oudeyer and O Sigaud)
- PhD in progress: Tristan Karch, "Language acquisition in curiosity-driven Deep RL", beg. in sept. 2019 (supervisors: PY Oudeyer and C Moulin-Frier)
- PhD in progress: Alexandr Ten, "Models of human curiosity-driven learning and exploration", beg. in sept. 2018 (supervisor: PY Oudeyer)
- PhD defended: Cécile Mazon, "Des Technologies Numériques Pour L'inclusion Scolaire Des Collégiens Avec TSA : des approches individuelles aux approches écosystémiques pour soutenir l'individu et ses aidants ", University of Bordeaux (supervised by H. Sauzéon).

- PhD defended: Pierre-Antoine Cinquin, "Conception, intégration et validation de systèmes numériques d'enseignement accessibles aux personnes en situation de handicap cognitif ", University of Bordeaux (supervised by H. Sauzéon & P. Guitton).
- PhD in progress: Adrien Bennetot, "Explainable continual learning for autonomous driving", Sorbonne University and ENSTA Paris (supervised by N Díaz Rodríguez & R Chatila).
- Master thesis defended: Anouche Banikyian "Curiosity, intrinsic motivation and spatial learning in children", University of Bordeaux (supervised by H. Sauzéon).
- Master thesis defended: Mehdi Alaimi "New educational application for fostering curiosity-related question-asking in children", University of Bordeaux (supervised by H. Sauzéon & PY Oudeyer).
- Master thesis defended: Juewan Wang "Can an accessible MOOC player improve the retention of disabled students? A MOOC accessibility assessment based on analytic method ", University of Bordeaux (supervised by H. Sauzéon & P. Guitton).

10.2.3. *Juries*

PY Oudeyer was reviewer of the PhD of Simon Hangl, entitled « Autonomous Robotics: an Integrated Approach from Controllers to Cognitive Capabilities », University of Innsbruck, Austria, 2019.

PY Oudeyer was reviewer of the PhD of Yannick Bourrier, titled "Diagnostic et prise de décision pédagogique pour la construction de compétences non- techniques en situation critique", from university Paris-Sorbonne, 2019.

PY Oudeyer was reviewer of the PhD of Leni Kenneth Le Goff, titled "Bootstrapping robotic ecological perceptin with exploration and interactions", from University Pierre et Marie Curie, 2019.

PY Oudeyer was examiner of the PhD of Jelena Mladenovic, titled "Modélisation computationnelle des compétences et des états de l'utilisateur pour optimiser les taches d'entraînement aux Interfaces Cerveaux-Ordinateur", University of Bordeaux, 2019.

PY Oudeyer was examiner of the PhD of Pierre Fournier, titled "Intrinsically Motivated and Interactive Reinforcement Learning: a Developmental Approach", University Pierre and Marie Curie, 2019.

PY Oudeyer was examiner of the PhD of Lisa Jacquey, titled "La sensibilité aux contingences sensorimotrices chez le bébé et son rôle dans le développement du savoir-faire corporel", from University of Paris, 2019.

PY Oudeyer was examiner in the PhD jury of Svetlana Meyer, on the topic "Entraînement de l'attention visuelle pour l'apprentissage de la lecture : l'apport du jeu vidéo d'action", University of Grenoble (feb. 2019).

Hélène Sauzéon organized a selection commitee for recruitment of Assistant professor in Rehabilitative science (University of de Bordeaux).

Hélène Sauzéon was external member of a selection commitee for recruitment of Assistant professor in cognitive psychology (University of Toulouse – LeMirail).

Hélène Sauzéon performed several scientific expertises for application requests such as HDR (ED SP2, University of Bordeaux) or local careers advancement (University of Bordeaux).

N. Díaz Rodríguez was invited jury (President) of the PhD thesis "Deep Learning for Abnormal Movement Detection using Wearable Sensors: Case Studies on Stereotypical Motor Movements in Autism and Freezing of Gait in Parkinson's Disease" in the University of Trento, Italy May 2019.

10.3. Popularization

10.3.1. *Internal or external Inria responsibilities*

Pierre-Yves Oudeyer has been member of the scientific committee for the permanent exhibition "Robots" at Cité des Sciences et de l'Industrie, Paris: http://www.cite-sciences.fr/fr/au-programme/expos-permanentes/expos-permanentes-dexplora/robots/lexposition/. See also https://www.inria.fr/fr/la-robotique-a-la-cite-des-sciences.

Pierre-Yves Oudeyer has been member of the scientific committee for the exhibition "Robots" at Cap Sciences, http://www.cap-sciences.net/au-programme/exposition/robots.

Pierre-Yves Oudeyer was member of the jury of the popular science competition Creathon in Poitiers.

Didier Roy is member of the team "Livre blanc Inria EdTech", with Gérard Giraudon, Pascal Guitton, Thierry Viéville and Margarida Romero.

Didier Roy is member of the Class'code and Class'code AI teams.

Didier Roy has been member of the organization committee for the public workshop/exhibition "Robots" at Cité des Sciences et de l'Industrie, Paris.

Didier Roy is vice-president of Poppy Station Structure. Poppy Station, which includes Poppy robot ecosystem (hardware, software, community) from the beginning, is a place of excellence to build future educational robots and to design pedagogical activities to teach computer science, robotics and Artificial Intelligence. https://www.poppy-station.org. Partners of Poppy Station : Inria, La Ligue de l'Enseignement, HESAM Université, SNCF Développement, IFÉ-ENS Lyon, MOBOTS – EPFL, Génération Robots, Pollen Robotics, KONEXInc, Mobsya, CERN Microclub, LINE Lab (Université Nice), Stripes, Canopé Martinique, Rights Tech Women, Editions Nathan.

10.3.2. Articles and contents

Sébastien Forestier and Pierre-Yves Oudeyer were interviewed for a video documentary on curiosity-driven learning in robots, now permanently displayed in the exhibition "Robots" at Cité des Sciences et de l'Industrie, Paris: http://www.cite-sciences.fr/fr/au-programme/expos-permanentes/expos-permanentes-dexplora/robots/lexposition/. The video is available here: https://www.youtube.com/watch?v=Kw724djJpUs.

PY Oudeyer was interviewed in RFI radio program "Autour de la question" on artificial intelligence and society (feb. 2019), http://www.rfi.fr/emission/20190211-comment-vivre-bonne-intelligence-toutes-intelligences.

Didier Roy and PY Oudeyer wrote an illustrated book on artificial intelligence and robotics for 7-8 years old children, to be published by Nathan.

10.3.3. Education

Hélène Sauzéon, as co-designer (with P. Guitton) of "Digital Accessibility" MOOC displayed on FUN platform, has interacted with the learners during the permanent session in 2019.

N Díaz Rodríguez participated on the Future Fest organized by the director and deans of School of AI with the objective of creating and self fund the first free degree on AI (April 2019, Granada, Spain. theSchool.ai).

Didier Roy is organizing an International R2T2 Robotics Mission Event for the EduCamp (RoboCup Junior 2020 at Bordeaux).

10.3.4. Interventions

Pierre-Yves Oudeyer gave a popular science conference at Lycée Montaigne, Bordeaux, on machine learning and AI (17th jan. 2019).

PY Oudeyer participated to a popular science debate on science-fiction movies and artificial intelligence at cinema Utopia, Bordeaux (jan. 2019).

PY Oudeyer gave an invited popular science talk at Collège des Bernardins, Paris, 2019, on affective machine learning and educational technologies, https://www.collegedesbernardins.fr/content/affects-numeriques-et-education and video at https://www.youtube.com/watch?v=WYd6RzaCQDc.

PY Oudeyer gave a popular science conference to 2nde students from Lycée La Sauque, Bordeaux.

PY Oudeyer gave a popular science presentation on artificial intelligence in the event "AI and education" organized at Inria Bordeaux by Didier Roy and Nicolas Rougier.

Hélène Sauzéon participated to several talks targetted disability-related professionals, students or industries : 1) Technologies educatives & Handicap Conference, organised by ESPE of Academy of Nantes, Mar., 20 ; 2) Journée d'étude de l'Observatoire des ressources numériques adaptées (Orna) « Autisme et outils numériques : de la recherche aux applications », May, 3at INSHE , Paris. ; 3) Colloque « Augmentation de l'humain » STAH Industrial Chair of Nouvelle Aquitaine, Mar., 28

Didier Roy gave an invited talk at CERN, Geneve, Switzerland, november 2019, on Educational Power of International R2T2 Robotics Missions

Didier Roy gave an invited talk at LEARN DAY, Bern, Switzerland, november 2019, on Strategies for introducing Robotics and Computer science activities at school.

Didier Roy organized the APEIA DAY (Artificial Intelligence & Education), at Inria BSO, Inria Sophia and open video-conference. Talks and workshop about unplugged and plugged activities for teaching AI from primary school to high education. With teachers, animators, education experts and AI researchers.

10.3.5. Internal action

Hélène Sauzéon has presented the « Collège + » and Kidlearn projects to Sophie Cluzel, Secretary of State for Disability, during the launch day of the Disability Plan of Inria (November, 16).

10.3.6. Creation of media or tools for science outreach

10.3.6.1. AIANA: an accessible multimedia player

Hélène Sauzéon is co-designer with P. Guitton of the accessible AIANA multimedia player for MOOCs. The V1 was developed by Learning Lab Inria in 2016 and the V2 by Damien Caseli (ADT engineer) as part of the POTIOC-Inria team in 2019. This player offers a flexible interface, configurable in terms of sensory and motor alternatives for the communication of people with physical disabilities, and of cognitive alternatives (attention load, reading aid, note-taking, etc.) for people with cognitive disabilities. The most convincing result is that it has increased the number of disabled learners completing a MOOC course (16%) on FUN platform compared to the available benchmark (10

10.3.6.2. Poppy Station: Robotics and AI for Education, Arts and Research with the Poppy platform

Didier Roy continued to promote and co-manage the Poppy Station Association.

Among the recent actions of poppy station, there were the training provided at the 2nd chance school created in Saintes by SNCF Development, the training given at the Institut Pasteur in Paris, on IT, robotics and artificial intelligence. Lasting collaborations have taken hold.

There is also a new artistic collaboration with the artist Clara Maïda and her project "(a)utom@ton" of contemporary musical and robotic creation (work for electroacoustic device and two humanoid robots).

Poppy Station has also participated in various events concerning educational robotics and artificial intelligence : APEIA Day at Inria Bordeaux, National Educational Robotics Colloquium at French Institute of education (ENS Lyon), Educatec Educatice exhibition in Paris, Ludovia Summer university in Ax-les-thermes.

A new open source wheeled robot printed in 3d was created for poppy Station by Pollen robotics, partner of poppy Station.

Poppy Station is also involved in European calls for projects with the Institut Pasteur around the continuous training of scientific staff on IT, robotics and AI.

Poppy Station Association brings together players from the world of business, research, training, culture and education and aims to develop and preserve robotic ecosystems and associated open source or free technologies, in all areas where their use can allow this development and preservation. The association pays particular attention to the fields of education, training, arts and research. Poppy Station is the result of a transfer of Inria research from its open-source robotics ecosystem Poppy to an external multi-partners structure. The Poppy ecosystem includes software and hardware tools to create and program robots, as well as educational content for education and training, and a large interdisciplinary community of users. This ecosystem was created and developed by the Inria Flowers team, with the aim of facilitating the experimentation and creation of innovative robotic tools in the fields of education, research and the arts. http://www.poppy-station.org.

10.3.6.3. IniRobot: Educational Robotics in Primary Schools

Didier Roy and PY Oudeyer continued to promote and disseminate the IniRobot pedagogical toolkit. Inirobot, a project done in collaboration with EPFL/Mobsya, aims to create, evaluate and disseminate a pedagogical kit which uses Thymio robot, an open-source and low cost robot, for teaching computer science and robotics.

IniRobot Project aims to produce and diffuse a pedagogical kit for teachers and animators, to help them and to train them directly or by the way of external structures. The aim of the kit is to initiate children to computer science and robotics. The kit provides a micro-world for learning, and takes an inquiry-based educational approach, where kids are led to construct their understanding through practicing an active investigation methodology within teams. See https://dm1r.inria.fr/c/kits-pedagogiques/inirobot or http://www.inirobot.fr.

Deployment: After 4 years of activity, IniRobot is used by more than 3000 adults, 30 000 children in France. Inirobot is also used in higher education, for example in Master 2 "Neurosciences, human and animal cognition" at the Paul Sabatier University in Toulouse. Inirobot is additionally used to train the management and elected officials of the Bordeaux metropolitan area (20 people). The digital mediators of the 8 Inria centers are trained to Inirobot and use it in their activities.

10.3.6.3.1. Partnership

The project continues to be carried out in main collaboration with the LSRO Laboratory from EPFL (Lausanne) and others collaborations such as the French National Education/Rectorat d'Aquitaine, the Canopé Educational Network, the ESPE (teacher's school) Aquitaine, the ESPE Martinique, the ESPE Poitiers and the National Directorate of Digital Education.

10.3.6.3.2. Created pedagogical documents and resources

- The inirobot pedagogical kit [87]: This pedagogical booklet provides activities scenarized as missions to do. An updated version of the Inirobot pedagogical kit is available at: https://dm1r.inria.fr/uploads/default/original/1X/70037bdd5c290e48c7ec4cb4f26f0e426a4b4cf6.pdf. Another pedagogical booklet has been also created by three pedagogical advisers for primary school, with pedagogical instructions and aims, under our supervision. The new pedagogical kit,"Inirobot Scolaire, Langages et robotique", which extends Inirobot to a full primary school approach is available at https://blogacabdx.ac-bordeaux.fr/numerique33/2018/10/04/robotique-sequence-inirobot-scolaire/

- Inirobot website and forum: https://dm1r.inria.fr/c/kits-pedagogiques/inirobot or http://www.inirobot.fr On this website, teachers, animators and general public can download documents, exchange about their use of inirobot's kit.

10.3.6.3.3. Scientific mediation

Inirobot is very popular and often presented in events (conferences, workshops, ...) by us and others.

10.3.6.3.4. Spread of Inirobot activities

Inirobot activities are used by several projects: Dossier 123 codez from Main à la Pâte Fundation, Classcode project, ...

10.3.6.3.5. MOOC Thymio

The MOOC Thymio, released in october 2018, in collaboration with Inria Learning Lab and EPFL (Lausanne, Switzerland), on FUN platform and edX EPFL Platform), use Inirobot activities to teach how to use Thymio robot in education.

GRAPHDECO Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

V. Deschaintre is the Web chair of EGSR 2020.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees (PC)

Y. Gryaditskaya was a PC member of Computational Visual Media Conference (CVM) 2020. A. Bousseau was a PC member for SIGGRAPH '19, Eurographics'19 and SMI'19. G. Drettakis was a member of the PC of Pacific Graphics'19 and EGSR'19 and participated in the papers sort for SIGGRAPH'19 in January in Zurich.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- George Drettakis is an Associate Editor of Computational Visual Media (CVM).

9.1.3.2. Reviewer - Reviewing Activities

Y. Gryaditskaya was a reviewer for IEEE Transactions on Image Processing (TIP), T. Stanko for Computer Aided Geometric Design journal, V. Deschaintre for SIGGRAPH Asia, Eurographics papers and STARs, R. Deeb for JOSA A, Optics express and CVIU and T. Thonat for Computer and Graphics.

9.1.4. Invited Talks

- Y. Gryaditskaya and V. Deschaintre gave invited talks at Ecole Polytechnique in July 2019.
- V. Deschaintre gave an invited talk at the Materials and Appearance Modelling workshop in Strasbourg in July.
- J. Philip and G. Drettakis gave an invited talk on multi-view relighting using a geometry-aware network at NASA Jet Propulsion Laboratory, Pasadena in July 28th, 2019.
- A. Bousseau gave a Thinkshell Architectural Geometry Lesson, Navier Laboratory (Paris, France), "Interpreting Drawings for 3D Design".
- G. Drettakis presented at the French Academy of Sciences days at Sophia-Antipolis (June 21st, 2019) on the topic "Computer Graphics and Machine Learning". Video on the Academy of Sciences site.
- G. Drettakis presented IBR research at the following companies: Mikros Image in Paris in September and Airbus Systems in Sophia in October.

9.1.5. Leadership within the Scientific Community

G. Drettakis chairs the Eurographics (EG) working group on Rendering, and the steering committee of EG Symposium on Rendering.

9.1.6. Scientific Expertise

G. Drettakis was an evaluator for the French ANR, ERC consolidator grants and Swiss National Research foundation, and is a member of the jury of the Ph.D. thesis award of the IG-RV (https://prixigrv2018.sciencesconf.org/). A. Bousseau was an evaluator for the IdEX University of Strasbourg (postdoc and PhD fellowships) and a member of the Eurographics Ph.D. award committee.

9.1.7. Research Administration

Adrien Bousseau is a member of "comité du centre" and "comité du suivi doctoral".

9.1.8. Interventions at Conferences

- J. Delanoy presented her work at the 8th ACM/EG Expressive Symposium, 5-6 May 2019, Genoa, Italy, and at SMI 2019 (Geometry Summit), 17-21 June 2019, Vancouver, Canada.
- F. Hähnlein presented a talk about "Data-driven sketch segmentation" project at JFIGRV2019 in Marseille, and also attended NeuroSTIC2019 and the UCA Deep Learning Summer School 2019.
- J. Philip presented his paper "Multi-view relighting using a geometry network" at SIGGRAPH 2019 in Los Angeles in August.
- V. Deschaintre presented his paper "Flexible SVBRDF Capture with a Multi-Image Deep Network" at EGSR 2019 in Strasbourg in July.
- Y. Gryaditskaya presented her paper "OpenSketch: A Richly-Annotated Dataset of Product Design Sketches" at SIGGRAPH Asia 2019 in Brisbane in November.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: T. Stanko Fondements mathématiques 1 (L1), 40h eq. TD, Université Côte d'Azur (France).

Master: G. Drettakis, A. Bousseau, Data visualization (M1), 12h eq. TD. Université Côte d'Azur (France).

9.2.2. Supervision

Ph.D.: Théo Thonat, Image-based rendering of thin and stochastic structures, defended June 2019, George Drettakis [13].

Ph.D.: Johanna Delanoy, Data-driven sketch-based modeling, defended June 2019, Adrien Bousseau [11].

Ph.D.: Valentin Deschaintre, Data-driven material capture, defended November 2019, Adrien Bousseau and George Drettakis [12].

Ph.D. in progress: David Jourdan, Interactive architectural design, since October 2018, Adrien Bousseau and Melina Skouras (Imagine)

Ph.D. in progress: Felix Hahnlein, Line Drawing Generation and Interpretation, since February 2019, Adrien Bousseau.

Ph.D. in progress: Julien Philip, Data-driven image-based rendering and relighting, since November 2016, George Drettakis.

Ph.D. in progress: Simon Rodriguez, Leveraging semantic information in image-based rendering, since November 2016, George Drettakis.

Ph.D. in progress: Stavros Diolatzis, Guiding and Learning for Illumination Algorithms, since April 2019, George Drettakis.

9.2.3. Juries

G. Drettakis was a member of the Ph.D. jury J-P. Bauchet (UCA) and Ph.D. reviewer of T. Leimkhueler (U. Saarbruecken). A. Bousseau was Ph.D. Reviewer for Marek Dvoroznak (TU Prague), Li Changjian (The University of Hong Kong) and Geoffrey Guingo (Grenoble University).

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- George Drettakis chairs the local "Jacques Morgenstern" Colloquium organizing committee and was elected a member of the Inria Scientific Council.

9.3.2. Articles and contents

J. Philip participated in the Youtube video interview: Intelligences artificielles: créatives mais perverties ? - Macroscopie La chaine - Video link - July 2019.

The work of J. Philip was the topic of a press release: L'algorithme d'apprentissage profond qui permet de changer l'éclairage des photos et de vidéos. Link to inria Press release and other media coverage Link to Pix Fan press release

The work Multi-view relighting using a geometry-aware network was presented at Adobe Max - November 2019. The project was part of the 11 projects selected out of 200 to be presented at Adobe MAX under the name project #LightRightSneak Link to the event.

Some press coverage of this event regarding the project : Link to Tech cafe listen starting at 32'00". Link to slrlouge. Link to petapixel.

GRAPHIK Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

- Marie-Laure Mugnier is co-responsible for a national group (2017-2020), named **Reasoning on Data** (Rod), common to two GDRs (CNRS research groups), namely Artificial Intelligence (formal and algorithmic aspects of Artificial Intelligence) and MaDICS (Big Data, Data Science). The aim of this action is to gather researchers from different domains on the development of knowledge representation and reasoning techniques devoted to data exploitation. http://www.lirmm.fr/rod/

- Rallou Thomopoulos has been co-leader of the trans-unit program **InCom** (Knowledge and Model Integration) of the CEPIA Division of INRA from 2018. She also organised the session on "Digital Issues" in the 2019 annual seminar of INRAE-TRANSFORM research division, and she was co-organizer of a one-day workshop on data-mining for food and bioproduct processing research on the 25th of November 2019.

- Patrice Buche is a coordinator of the **IN-OVIVE** (INtégration de sources/masses de données hétérogènes et Ontologies, dans le domaine des sciences du VIVant et de l'Environnement) network. He also was one of the organisers of the Fifth IN'OVIVE workshop event (https://workshop.inra.fr/in-ovive-2019/), collocated with the IC 2019 conference.

9.1.1.1. General Chair, Scientific Chair

Madalina Croitoru is part of the Steering Committee of ICCS 2020 (25th International Conference of Conceptual Structures).

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

Madalina Croitoru was co-chair of the **Doctoral Consortium at AAMAS 2019** (http://aamas2019.encs.concordia.ca/).

9.1.2.2. Member of the Conference Program Committees

We regularly participate to the program committees of the top conferences in AI and KR (IJCAI, AAAI, ECAI, KR, AAMAS), as PC members or senior PC members. We also regularly participate to the program committees of more focused international conferences and workshops as well as national events.

International

- IJCAI / PRICAI 2020 (29th International Joint Conference on Artificial Intelligence): senior PC and PC
- IJCAI / ECAI 2019 (28th International Joint Conference on Artificial Intelligence): senior PC
- ECAI 2020 (24th European Conference on Artificial Intelligence): senior PC
- AAAI 2019 (33rd AAAI Conference on Artificial Intelligence): PC
- Datalog 2.0 2019: PC
- ISWC 2019 (18th International Semantic Web Conference): PC

National

- CNAI 2019 (Conférence Nationale en Intelligence Artificielle): PC
- IC 2019 (Ingénierie des Connaissances): PC
- EGC 2019 (Extraction et Gestion des Connaissances): PC

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards
- International Journal of Metadata, Semantics and Ontologies (IJSMO)
- Revue africaine de la recherche en informatique et mathématiques appliquées (ARIMA)

9.1.3.2. Reviewer - Reviewing Activities
- Artificial Intelligence Journal (AIJ)
- Theory and Practice of Logic Programming (TPLP)
- International Journal of Approximate Reasoning (IJAR)

9.1.4. Invited Talks

- Marie-Laure Mugnier, *Existential Rules: a Study Through Chase Termination, FO-Rewritability and Boundedness*, keynote talk, 3rd International Joint Conference on Rules and Reasoning (RuleML+RR 2019), 2019 http://2019.ruleml-rr.org
- Marie-Laure Mugnier, *Reasoning on Data: Ontology-Based Data Access*, keynote talk, Journées d'Intelligence Artificielle Fondamentale (JIAF 2019), associated with PFIA 2019, 2019 https://www.irit.fr/pfia2019/jiaf/
- Marie-Laure Mugnier, *An introduction to Ontology-Based Data Access*, invited tutorial, Winter School of the 19th Conférence Francophone sur l'Extraction et la Gestion de Connaissances (EGC 2019), 2019 https://egc2019.sciencesconf.org/
- Patrice Buche, *Semantic to the rescue of food industry needs*, invited talk, SEmantic web SeminAr MontpEllier (SESAME), 2019 (https://informatique-mia.inra.fr/sesame)
- Pierre Bisquert, *Argumentation and decision in agronomical problems*, invited talk, Journée Robustesse en traitement de données et en recommandation: méthodes et applications, 2019 https://lfa2019.wp.imt.fr/files/2019/10/Programme13nov2019.pdf

9.1.5. Research Administration

- Marie-Laure Mugnier was the *scientific coordinator* for the evaluation of Inria theme "Data and Knowledge Representation and Processing" and its twelve project-teams (evaluation period: 2016-2019).
- From September 2019 onwards, Madalina Croitoru is *deputy member* of the CNU section 27 (Computer Science).
- Rallou Thomopoulos is an *elected member* of the Scientific Committee of the INRA-CEPIA research division (2016-2020).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

The six faculty members teach at all university levels (IUT, Licence, Master). All of them do an average of 200 teaching hours per year. The main courses they are in charge of are: Logics (L), Databases (M, IUT), Web Technologies (IUT), Artificial Intelligence (M), Knowledge Representation and Reasoning (M), Social and Semantic Web (M), Software Engineering (IUT), Human Computer Interaction (IUT). Concerning full-time researchers in 2019, Jean-François Baget and Pierre Bisquert gave Master courses (40h and 1h30 respectively).

Moreover, some faculty members have specific teaching responsibilities:
- At IUT, Madalina Croitoru was the head of Special Conversion Year (2014-2019) and the head of international relations for the computer science department (2018-mid-2019). In 2019, she was promoted professor and moved to the Science Faculty. From September 2019, she has been in charge of international relations for the Computer Science department at the Science Faculty as well as of the management of industrial master internships (about 100 students each year).
- Federico Ulliana is the head of the curriculum "Data, Knowledge and Natural Language Processing" (DECOL, about 30 students), part of the Master of Computer Science, since 2017.

9.2.2. Involvement in University Structures

- Michel Leclère has been deputy head of the Computer Science department of the Science Faculty (July 2015 - July 2019). He was also in charge of the Information Systems of the faculty (April 2017 - October 2019)
- Marie-Laure Mugnier is member of the Council of the Scientific Department MIPS (Mathematics Informatics Physics and Systems) of the University of Montpellier (since 2016).

9.2.3. Supervision

PhD defended: Stathis Delivorias, "Chase variants & boundedness". Supervisors: Federico Ulliana, Michel Leclère and Marie-Laure Mugnier. University of Montpellier, September 2019.

PhD defended: Bruno Yun, "Argumentation techniques for existential rules". Supervisors: Madalina Croitoru, Rallou Thomopolous and Srdjan Vesic (CRIL). University of Montpellier, July 2019.

PhD in progress: Elie Najm, "Knowledge Representation and Reasoning for innovating agroecological systems". Supervisors: Marie-Laure Mugnier and Christian Gary (INRA, UMR SYSTEM). Started October 2019.

PhD in progress: Olivier Rodriguez, "Querying key-value store under semantic constraints". Supervisors: Federico Ulliana and Marie-Laure Mugnier. Started February 2019.

PhD in progress: Martin Jedwabny, "Argumentation and ethical decision making". Supervisors: Madalina Croitoru and Pierre Bisquert. Started October 2019.

PhD in progress: Maxime Buron (CEDAR Inria team), "Efficient reasoning on large heterogeneous graphs". Supervisors: François Gaosdoué (IRISA/CEDAR), Ioana Manolescu (CEDAR) and Marie-Laure Mugnier. Started October 2017.

9.2.4. Juries

- Jury member for the HDR of Ivan Varzinczak (Nov. 2019, U. Artois) - Marie-Laure Mugnier
- Jury member for the HDR of Meghyn Bienvenu (Dec. 2019, U. Bordeaux) - Marie-Laure Mugnier
- Jury reviewer for the PhD defense of Gerald Berger (June 2019, TU Vienna, Austria) - Marie-Laure Mugnier
- Jury member for the PhD defense of Frederic Verdier (Dec. 2019, U. Montpellier) - Marie-Laure Mugnier
- Jury member for the PhD defense of Lily Galois (Dec. 2019, U. Lille) - Marie-Laure Mugnier

We do not not mention here participations to juries as supervisors of GraphIK PhD students.

9.3. Popularization

Michel Chein gave two talks on Artificial Intelligence: a public conference in the context of the Academy of the Sciences and Humanities of Montpellier and a radio interview (RCF) - both in March 2019.

HEPHAISTOS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

- J-P. Merlet is a permanent member of the International Steering Committee of the IROS conference, of the CableCon conference and chairman of the scientific Committee of the Computational Kinematics workshop. He is also an advisor for ICRA 2020,
- Y. Papegay is a permanent member of the International Steering Committee of the International Mathematica Symposium conferences series. He is a member of the OpenMath Society, building an extensible standard for representing the semantics of mathematical objects.

9.1.1.1. Reviewer - Reviewing Activities

- The members of the team reviewed numerous papers for numerous international conferences and journals

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- E. Wajnberg is Editor-in-Chief of the journal BioControl (published by Springer).
- E. Wajnberg is a board member of the journals Entomologia Experimentalis et Applicata (published by Wiley), Neotropical Entomology (published by Springer), Applied Entomology and Zoology (published by Springer), and Journal of Economical Entomology (Publish by Oxford University Press).

9.1.3. Invited Talks

- E. Wajnberg has been invited for talks by the University of Beer Shava at Sde Boqer (Israel, March), the University of La Plata (Argentina, April), the University of Buenos Aires (Argentina, April), the University of São Paulo at Piracicaba (Brazil, October)

9.1.4. Leadership within the Scientific Community

- J-P. Merlet is Inria representative to the PPP Eurobotics aisbl. He is a member of the IFToMM (International Federation for the Promotion of Mechanism and Machine Science) Technical Committees on History and on Computational Kinematics and is one of the 10 elected members of IFToMM Executive Council, the board of this federation. He is a member of the scientific committee of the CNRS GDR robotique and a chair of 3IA Côte d'Azur.

9.1.5. Scientific Expertise

- J-P. Merlet was involved in project evaluations for several foreign funding agencies (Israel, Austria, ERC). He was also appointed as *Nominator* for the Japan's Prize.
- E. Wajnberg is involved in project evaluation for several foreign funding agencies (Belgium, Italy).
- E. Wajnberg was invited to be a committee number for recruiting an Institute Director by the CNR (Rome, Italy)

9.1.6. Research Administration

- J-P. Merlet was an elected member of the Academic Council of UCA COMUE (until July 2019), is a corresponding member of Inria ethical committee (COERLE) and member of the Research, Ethical Committees of UCA. He is an elected member of Inria Scientific Committee and of the "Commission Administrative Paritaire" of Inria

- Y. Papegay is a member of the CUMI (the committee managing the interaction between researchers and the computer support staff)
- O. Pourtallier is responsible of the NICE committee (long term invited scientists and post-doctoral student selection).
- O. Pourtallier is a board member of the Scientific and Pedagogical Council of DS4H graduate school of UCA.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

J-P. Merlet has taught 6 hours on parallel robots to Master ISC (M2) at University of Toulon. He has also been invited at ESIEE Paris for a talk about assistance robotics

J-P. Merlet, P. Martinet (CHORALE) and G. Allibert (I3S) have organized the first GDR robotics winter school, *Foundation of robotics*. During 5 days 35 students, mostly 1st year PhD students, have followed courses taught by international experts. Slides and additional materials have been regrouped in a HAL collection, *Robotics principia*, that has been organized in such a way that the next occurrences of this school will also be able to deposit additional documents. The idea of this collection is to be able to address all topics in robotics with various viewpoints.

In February, Y. Papegay has been visiting lecturer of University of French Polynesia, where he gave an object oriented programming course.

Y. Papegay has taught 3 hours on parallel robots to Master ISC (M2) at University of Toulon

P. Pourtallier lectured 6 hours on game theory to Master OSE (M2), at École des Mines de Paris, Sophia Antipolis, France

E. Wajnberg lectured One week course (about 30 h) about the use of the R program and statistics for PhD students and senior scientists in Rehovot (Israel, February)

9.2.2. Supervision

J. Moussaid. Analyse de robots parallèles à câbles (2019-), Supervisor: J-P. Merlet

W. Plouvier. Improving pest control efficiency: a modelling approach (2015-2019). Supervisor: E. Wajnberg.

E. Thomine. Agencement cultural pour promouvoir le transfert des services écosystémiques de biocontrôle au sein des paysages agricoles (2016 à 2019). Supervisors : N. Desneux & E. Wajnberg.

9.2.3. Juries

- J-P. Merlet was a jury member for the Best PhD Awards of the robotics GDR and has been president of 2 PhD juries.

9.3. Popularization

- J-P. Merlet gives 3 talks in the Alpes-Maritimes in the framework of the *Science pour Tous* association. He has also participated in a seminar on *robotics and media* involving 6 robotics experts and 6 journalists for a reflexion on the bias of the presentation of robotics to a general audience. He was also a member of the scientific committee for the permanent exhibition *Robot* at the Cité des Sciences, Paris
- Y. Papegay is actively participating to the Math.en.Jeans initiative for Mathematics teaching for undergraduate students.
- Y. Papegay is developing several pedagogical resources based on small robotics devices at high-school level.

- Y. Papegay organized and animated summer schools in experimental mathematics and computer sciences. Several one week sessions have been held in Oxford in June, July, August and November gathering more than 70 high-school students - most of them were awardees in Mathematics Olympiads.
- O. Pourtallier is corresponding researcher for two MATh.en.JEANS workshops, an initiative for Mathematics teaching for undergraduate students.
- E. Wajnberg gives 5 talks in the Alpes-Maritimes in the framework of the *Science pour Tous* association

9.3.1. Interventions

- the HEPHAISTOS project has on average about 100 visitors per year, either young students or teachers, to which we present our robotics and assistance activities

9.3.2. Internal action

- the HEPHAISTOS project has developed a set of cable-driven parallel robots, the MARIONET-SCHOOL series, that is used to illustrate visually scientific concepts in various domains

HYBRID Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

- Valérie Gouranton was Main Organizer of the Seminar "Art/Heritage/Culture" (IRISA, Rennes, February 2019), and Member of Organizing Committee of "Journée Science et Musique" (IRISA, Rennes, October 2019).
- Ronan Gaugne was Member of Organizing Committee of "Journée Science et Musique" (IRISA, Rennes, October 2019)
- Florian Nouviale was Member of Organizing Committee of the "Journée Science et Musique" (IRISA, Rennes, October 2019).

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Anatole Lécuyer was Member of the organization committee of IEEE VR 2019 (Panels).
- Ferran Argelaguet was Program Chair of the IEEE VR 2019 conference track.

10.1.2.2. Member of the Conference Program Committees

- Ferran Argelaguet was Member of the conference program committee of ACM SUI 2019.
- Valerie Gouranton was Member of the conference program committee of EuroVR 2019.
- Guillaume Moreau was Member of IEEE ISMAR 2019 Program committee.
- Jean-Marie Normand was Member of the program committee of IEEE VR 2019 Conference Track and of the IEEE AIVR 2019 (International Conference on Artificial Intelligence and Virtual Reality).

10.1.2.3. Reviewer

- Anatole Lécuyer was Reviewer for IEEE VRST 2019, IEEE VR 2019.
- Ferran Argelaguet was Reviewer for IEEE VR 2019, IEEE VRST 2019, ACM CHI 2019, ACM UIST 2019, IEEE ISMAR 2019.
- Maud Marchal was Reviewer for Eurographics 2019, ACM Siggraph Asia 2019, ACM UIST 2019, Eurohaptics 2019, IEEE Haptic Symposium 2019, IEEE ICRA 2019, IHM 2019.
- Valérie Gouranton was Reviewer for IEEE VR 2019, Euro VR 2019
- Guillaume Moreau was Reviewer for IEEE VR 2019, IEEE ISMAR 2019, ACM Augmented Human 2019 and IAPR Machine Vision Applications.
- Jean-Marie Normand was Reviewer for IEEE AIVR 2019, AH 2019, IEEE ISMAR 2019, IEEE VR 2019 Journal Track, IEEE VR 2019 Conference Track, IEEE CoG 2019 (Conference on Games), ACM SAP 2019.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Anatole Lécuyer is Associate Editor of the IEEE Transactions on Visualization and Computer Graphics, Frontiers in Virtual Environments, and Presence journals.
- Valérie Gouranton is Review Editor of Frontiers in Virtual Environments.
- Ferran Argelaguet is Review Editor of Frontiers in Virtual Environments.
- Maud Marchal is Review Editor of Frontiers in Virtual Environments.

- Guillaume Moreau is Review Editor of Frontiers in Virtual Environments.
- Jean-Marie Normand is Review Editor of Frontiers in Virtual Environments.

10.1.3.2. Reviewer - Reviewing Activities

- Ferran Argelaguet was Reviewer for IEEE Transactions on Visualization and Computer Graphics, IEEE Computer Graphics and Applications, International Journal on Human Computer Studies.
- Maud Marchal was Reviewer for IEEE Transactions on Visualization and Computer Graphics, IEEE Transactions on Haptics, The Visual Computer and Computers and Graphics Journal.
- Guillaume Moreau was reviewer for Computers & Graphics, IEEE Transactions on Visualization and Computer Graphics, Frontiers in Virtual Environments.
- Jean-Marie Normand was Reviewer for IEEE Transactions on Visualization and Computer Graphics, Computer Animation and Virtual Worlds.
- Ronan Gaugne was Reviewer for Thermal Science and Engineering Progress, Elsevier and Archaeological and Anthropological Sciences, Springer

10.1.4. Invited Talks

- Valérie Gouranton was invited to give a talk at Aristote Association, Ecole Polytechnique Paris (June 2019) and at Consortium 3D of TGIR HumaNum, Nantes (Dec. 2019)
- Guillaume Moreau was invited to give invited talks at University of South Australia, at the Research workshop of Ecole Centrale Group and at IRT b<>com.
- Ronan Gaugne was invited to give a talk at the EVA (Electronic information, the Visual Arts and beyond) conference "L'original et la copie", at Musée du Quai Branly, Paris, in October 2019.

10.1.5. Leadership within the Scientific Community

- Anatole Lécuyer is Member of the Scientific Board of INCR ("Institut des Neurosciences Cliniques de Rennes")
- Ronan Gaugne is Member of the Selection and Validation Committee for the French cluster "Pôle Images et Réseaux", and of the Consortium 3D of TGIR HumaNum.
- Valérie Gouranton is Member of the Executive Committee of AFRV (French Association for Virtual Reality), and of the Consortium 3D of TGIR HumaNum.
- Maud Marchal is Member of the Executive Committee of Eurographics French Chapter.
- Guillaume Moreau is Member of the Steering Committee of IEEE ISMAR Conference.

10.1.6. Scientific Expertise

- Ferran Argelaguet was Member of a selection committee for the ANR.
- Guillaume Moreau is Member of ANSES (National Health Agency) Working Group on the "sanitary effects of Virtual, Mixed and Augmented Reality". He is also Member of the HCERES (Higher Education and Research Evaluation Council) Committee of SIGMA Engineering School.

10.1.7. Research Administration

- Bruno Arnaldi is Deputy Director of IRISA, and co-Head of the Scientific Council of University of Rennes (ENS Rennes, ENSC Rennes, IEP Rennes, INSA Rennes, University Rennes 1, and University Rennes 2).
- Maud Marchal is Co-Head of the Master of "Research in Computer Science" (SIF) at University Rennes 1.
- Valérie Gouranton is Head of cross-cutting Axis "Art, Heritage & Culture" at IRISA UMR 6074 and she is a member of the Conseil National des Universités 27th section (computer science).
- Guillaume Moreau is Dean of Studies at ECN.
- Jean-Marie Normand is Head of the "Virtual Reality" major at ECN.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Anatole Lécuyer:

> Master AI: "Haptic Interaction and Brain-Computer Interfaces", 6h, M2, Ecole Polytechnique, FR
>
> Master MNRV: "Haptic Interaction", 9h, M2, ENSAM, Laval, FR
>
> Master SIBM: "Haptic and Brain-Computer Interfaces", 4.5h, M2, University of Rennes 1, FR
>
> Master CN: "Haptic Interaction and Brain-Computer Interfaces", 9h, M1 and M2, University of Rennes 2, FR
>
> Master SIF: "Pseudo-Haptics and Brain-Computer Interfaces", 6h, M2, University of Rennes 1, FR

Bruno Arnaldi:

> Master INSA Rennes: "VRI: Virtual Reality and Multi-Sensory Interaction Course", 4h, M2, INSA Rennes, FR
>
> Master INSA Rennes: "CG: Computer Graphics", 12h, M2, INSA Rennes, FR
>
> Master INSA Rennes: "Virtual Reality", courses 6h, projects 16h, M1 and M2, INSA Rennes, FR
>
> Master INSA Rennes: Projects on "Virtual Reality", 20h, M1, INSA Rennes, FR

Ferran Argelaguet:

> Master STS Informatique: "Techniques d'Interaction Avancées", 26h, M2, ISTIC, University of Rennes 1, FR
>
> Master SIF: "Virtual Reality and Multi-Sensory Interaction", 8h, M2, University of Rennes 1, FR
>
> Master SIF: "Data Mining and Visualization", 2h, M2, University of Rennes 1, FR

Maud Marchal:

> Master of Research in Computer Science: "Haptic rendering and physically-based simulation", 4h, M2, University of Rennes 1, FR
>
> Master INSA Rennes: "Computer Graphics", 26h, M1 and responsible of this lecture, INSA Rennes, FR

Valérie Gouranton:

> Licence: "Introduction to Virtual Reality", 22h, L2 and responsible of this lecture, INSA Rennes, FR
>
> Licence: Project on "Virtual Reality", 16h, L3 and responsible of this lecture, INSA Rennes, FR
>
> Master INSA Rennes: "Virtual Reality", 16h, M2, INSA Rennes, FR
>
> Master INSA Rennes: Projects on "Virtual Reality", 20h, M1, INSA Rennes, FR
>
> Master CN: "Virtual Reality", 3h, M1, University of Rennes 2, FR

Ronan Gaugne:

> INSA Rennes: Projects on "Virtual Reality", 24h, L3, Insa Rennes, FR
>
> Master Digital Creation: "Virtual Reality", 6h, M1, University of Rennes 2, FR

Guillaume Moreau:

> Dean of studies, Ecole Centrale de Nantes, FR
>
> Virtual Reality Major, "C++ Programming for VR", 30h, M1/M2, Ecole Centrale de Nantes, FR
>
> Virtual Reality Major, "Fundamentals of Virtual Reality", 6h, M1/M2, Ecole Centrale de Nantes, FR
>
> Virtual Reality Major, "Computer Graphics", 4h, M1/M2, Ecole Centrale de Nantes, FR
>
> Virtual Reality Major, "Advanced Software Development", 20h, M1/M2, Ecole Centrale de Nantes, FR
>
> Computer Science Major, "Discrete Mathematics", 10h, M1/M2, Ecole Centrale de Nantes, FR

Jean-Marie Normand:

> Virtual Reality Major, "Computer Graphics", 24h, M1/M2, Ecole Centrale de Nantes, FR
>
> Virtual Reality Major, "Fundamentals of Virtual Reality", 14h, M1/M2, Ecole Centrale de Nantes, FR
>
> Virtual Reality Major, "Computer Vision and Augmented Reality", 26h, M1/M2, Ecole Centrale de Nantes, FR
>
> Virtual Reality Major, "Advanced Concepts", 24h, M1/M2, Ecole Centrale de Nantes, FR
>
> Virtual Reality Major, "Projects on Virtual Reality", 20h, M1/M2, Ecole Centrale de Nantes, FR

10.2.2. Supervision

- PhD: Hakim Si-Mohammed, "Design and Study of Interactive Systems based on Brain Computer Interfaces and Augmented Reality", INSA de Rennes, Defended December 3rd, 2019, Supervised by Anatole Lécuyer, Géry Casiez (Mjolnir, Inria) and Ferran Argelaguet

- PhD in progress: Hadrien Gurnel, "Assistance robotisée d'insertion d'aiguille par comanipulation", Started in October 2016, Supervised by Alexandre Krupa (Rainbow, Inria) and Maud Marchal

- PhD in progress: Antonin Bernardin, "Interactive physically-based simulation of dexterous manipulation for robot understanding", Started in September 2017, Supervised by Maud Marchal and Christian Duriez (Defrost, Inria)

- PhD in progress: Xavier de Tinguy, "Haptic manipulation in virtual environments", Started in September 2017, Supervised by Maud Marchal, Claudio Pacchierotti (Rainbow, Inria) and Anatole Lécuyer

- PhD in progress: Rebecca Fribourg, "Perception and interaction with and via avatars", Started in September 2017, Supervised by Ferran Argelaguet, Ludovic Hoyet (Mimetic, Inria) and Anatole Lécuyer

- PhD in progress: Romain Lagneau, "Data-driven models for dexterous manipulation of robots", Started in Septembre 2017, Supervised by Maud Marchal and Alexandre Krupa (Rainbow, Inria)

- PhD in progress: Flavien Lécuyer, "Interactive digital introspection methods for archeology", Started in September 2017, Supervised by Valérie Gouranton, Grégor Marchand (CNRS UMR CREAAH) and Bruno Arnaldi

- PhD in progress: Guillaume Bataille, "Natural interactions with IoT using VR/AR", Started in October 2017, Supervised by Valérie Gouranton, Danielle Pelé and Jérémy Lacoche (Orange Labs) and Bruno Arnaldi

- PhD in progress: Etienne Peillard, "Improving Perception and Interaction in Augmented Reality", Started in October 2017, Supervised by Guillaume Moreau, Ferran Argelaguet, Anatole Lécuyer and Jean-Marie Normand

- PhD in progress: Romain Terrier, "Presence of self and others in a collaborative virtual environment", Started in October 2017, Supervised by Valérie Gouranton, Nico Pallamin (b<>com), Cédric Bach (HDG) and Bruno Arnaldi

- PhD in progress: Mathis Fleury, "Neurofeedback based on fMRI and EEG", Started in November 2017, Supervised by Anatole Lécuyer and Christian Barillot (Visages, Inria)

- PhD in progress: Tiffany Luong, "Affective VR: acquisition, modelling, and exploitation of affective states in virtual reality", Started in February 2018, Supervised by Anatole Lécuyer, Marc Diverrez (b<>com), Ferran Argelaguet

- PhD in progress: Hugo Brument, "Towards user-adapted interaction techniques based on human locomotion laws for navigating in virtual environments", Started in October 2018, Supervised by Ferran Argelaguet, Maud Marchal and Anne-Hélène Olivier (MimeTIC, Inria)

- PhD in progress: Diane Dewez, "Avatar-Based Interaction in Virtual Reality", Started in October 2018, Supervised by Anatole Lécuyer, Ferran Argelaguet and Ludovic Hoyet (MimeTIC)

- PhD in progress: Victor Rodrigo Mercado Garcia, "Encountered-type haptics", Started in October 2018, Supervised by Maud Marchal and Anatole Lécuyer

- PhD in progress: Guillaume Vailland, "Outdoor wheelchair assisted navigation: reality versus virtuality", Started in November 2018, Supervised by Valérie Gouranton and Marie Babel (Rainbow, Inria)

- PhD in progress: Gwendal Fouché, "Immersive Interaction and Visualization of Temporal 3D Data", Started in October 2019, Supervised by Ferran Argelaguet, Charles Kervrann (Serpico Team) and Emmanuelle Faure (Mosaic Team).

- PhD in progress: Adelaide Genay, "Embodiment in Augmented Reality", Started in October 2019, Supervised by Anatole Lécuyer, Martin Hachet (Potioc, Inria)

- PhD in progress: Martin Guy, "Physiological markers for characterizing virtual embodiment", Started in October 2019, Supervised by Guillaume Moreau, Jean-Marie Normand and Camille Jeunet (CNRS, CLEE)

- PhD in progress: Grégoire Richard, "Touching Avatars: The role of haptic feedback in virtual embodiment", Started in October 2019, Supervised by Géry Casiez (Loki, Inria), Thomas Pietzrak (Loki, Inria), Anatole Lécuyer and Ferran Argelaguet

- PhD in progress: Sebastian Vizcay, "Dexterous Interaction in Virtual Reality using High-Density Electrotactile Feedback", Started in November 2019, Supervised by Ferran Argelaguet, Maud Marchal and Claudio Pacchierotti (Rainbow, Inria)

10.2.3. Juries

- Anatole Lécuyer was Referee for the PhD Theses of Justine Saint-Aubert (ISIR-UPMC), Geoffrey Gorisse (ENSAM), Léa Pillette (Univ. Bordeaux), Examiner for the PhD Thesis of Mélodie Fouillen (Inserm Lyon), Grégoire Cattan (GIPSA-Lab), and Examiner for the HDR Thesis of Sinan Haliyo (ISIR-UPMC).

- Bruno Arnaldi was Referee for the PhD Theses of Rémi Lacaze-Labadie (UTC Compiègne) and Nicolas Muller (IRIT, Toulouse), external reviewer for the PhD defense of Alexandre Kabil (IMT Atlantique - Brest) and member for the PhD Defense of Hakim Si Mohammed (INSA Rennes).

- Guillaume Moreau was external reviewer for the PhD defense of Nicolas Muller (IRIT, Univ. Toulouse), Alice Guerville-Ballé (Univ. Pau), Jason Rambach (Univ. Kaiserslautern, DE), president of the committee for Thibaud Toullier (IFSTTAR, Univ. Rennes), Nam Duong Duong (IRT b<>com, Centrale-Supelec).

- Jean-Marie Normand was examiner for the PhD Thesis of Geoffrey Gorisse (ENSAM).

10.3. Popularization

10.3.1. Articles and contents

- Ouest-France: Interview of Anatole Lécuyer (October 2019)

- France Inter: Interview of Anatole Lécuyer in the broadcast "Du vent dans les synapses" (November 2019)

- France TV: Interview of Guillaume Moreau and Jean-Marie Normand in "Télématin"

10.3.2. Interventions

- "Technoférence Humain Augmenté": Presentation from Rebecca Fribourg (Nantes, January 2019)

- "Made by DV-Group": Event organized by Rennes Metropole about "VR and Cinema", presentations and demos from Ferran Argelaguet (Rennes, February 2019)

- "Laval Virtual 2019": Demos of FIVE/SEVEN software (March 2019)

- "Journées Nationales de l'Archéologie": Demos made by Ronan Gaugne and Valérie Gouranton (Champs Libres, Rennes, June 2019)
- "Journées Européennes du Patrimoine": Conference and Demos made by Ronan Gaugne and Valérie Gouranton (Musée des Beaux Arts, Rennes, September 2019)
- "Festival Demain/Maintenant" : Presentation from Anatole Lécuyer (Rennes, October 2019)
- "Fête de la Science" 2019 : Presentation from Anatole Lécuyer (Saint-Louis, October 2019)
- "Journée Science et Musique" : Demos made by Florian Nouviale, Ronan Gaugne and Valérie Gouranton (Rennes, October 2019). Rebecca Fribourg and Diane Dewez also participated in the organization of the event.
- "Festival du Livre du Var" 2019 : Presentation from Anatole Lécuyer (Toulon, November 2019)
- "Digital Design Days" 2019 : Presentation from Ronan Gaugne (Milano, Italy, November 2019)

10.3.3. Internal action

- Inria/IRISA "VR Hackathon" 2019: Hackathon (20 participants) organized by Hybrid team and open to all members of Inria Rennes center (May 2019).
- "20 years of Immersia": Event organized by Inria Rennes/IRISA center, with presentations from Anatole Lécuyer and Bruno Arnaldi, and demos made by Florian Nouviale and Ronan Gaugne (November 2019).

10.3.4. Creation of media or tools for science outreach

The ANR-FRQSC INTROSPECT project produced a transparent 3D printing of the content of an Egyptian mummy cat from a CT scan. The mummy is part of the collection of the Musée des Beaux-Arts of Rennes. The 3D printing is permanently exhibited in the Museum, next to the real mummy (Figure 21)

The immersive VR application of the LSI project developed during the hosting of the invited professor Franz Fischnaller from Albertina Accademy of Fine Arts around the Last Supper painting of Lenonardo da Vinci was deployed and exhbited in the Deep Space 8K of the Ars Electronica center in Linz, Austria (Figure 22).

Figure 21. The mummy cat and its copy in the Museum des Beaux-Arts in Rennes.

Figure 22. The LSI project in the Ars Electronica center in Linz.

<h1 style="text-align:center; color:red">ILDA Project-Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- ACM CHI Steering Committee, ACM SIGCHI Conference on Human Factors in Computing Systems: Caroline Appert

10.1.1.2. Member of the Organizing Committees

- IEEE VIS (IEEE Visualization Conference) 2019, 2020: Anastasia Bezerianos (Organization Committee - Workshops co-Chair)

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- CHI 2020, 38th ACM SIGCHI Conference on Human Factors in Computing Systems: Anastasia Bezerianos (SC - subcommittee chair)

10.1.2.2. Member of the Conference Program Committees

- CHI 2020, 38th ACM SIGCHI Conference on Human Factors in Computing Systems: Caroline Appert, Emmanuel Pietriga
- IEEE VIS 2019, Visualization Conference (InfoVis): Anastasia Bezerianos
- TheWebConf (WWW) 2020, 29th Web Conference, research track Web Mining and Content Analysis: Emmanuel Pietriga
- ESWC 2020, 17th Extended Semantic Web Conference: Emmanuel Pietriga
- TheWebConf (WWW) 2019, 28th Web Conference, research track Web Content Analysis, Semantics, and Knowledge: Emmanuel Pietriga
- ESWC 2019, 16th Extended Semantic Web Conference: Emmanuel Pietriga
- EICS 2019, 11th ACM Symposium on Engineering Interactive Computing Systems, Tech Notes, Olivier Chapuis

10.1.2.3. Reviewer

- ACM EICS 2020, SIGCHI Symposium on Engineering Interactive Computing Systems: Emmanuel Pietriga
- ACM CHI 2019, Conference on Human Factors in Computing Systems: Caroline Appert, Olivier Chapuis, Emmanuel Pietriga, Hugo Romat.
- ACM CHI 2020, Conference on Human Factors in Computing Systems: Olivier Chapuis, Vanessa Peña-Araya
- ACM UIST 2019, Interface Software and Technologies Symposium: Olivier Chapuis, Emmanuel Pietriga, Hugo Romat.
- ACM DIS 2019, Designing Interactive Systems: Caroline Appert
- ACM MobileHCI 2019, International Conference on Human-Computer Interaction with Mobile Devices and Services: Caroline Appert, Olivier Chapuis
- IEEE VIS 2019, Visualization Conference (InfoVis): Emmanuel Pietriga, Vanessa Peña-Araya (short papers)

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- ACM ToCHI, Transactions on Computer-Human Interaction: Caroline Appert (associate editor)

10.1.3.2. Reviewer - Reviewing Activities

- ACM ToCHI, Transactions on Computer-Human Interaction: Olivier Chapuis
- IEEE TVCG, Transactions on Visualization and Computer graphics: Anastasia Bezerianos

10.1.4. Invited Talks

- Caroline Appert: Lowering the cost of transitions between devices, Microsoft Research Faculty Summit, Seattle, USA, July 2019.
- Anastasia Bezerianos: Interactive visualizations and large displays, Indiana University, USA, December 2019.
- Olivier Chapuis: Multi-user interaction on wall displays, Public lectures on interactive design, Chalmers University, Göteborg, Sweden, November 2019.
- Emmanuel Pietriga: Créativité et visualisation de réseaux sous formes de diagrammes noeuds-liens, École d'été de cartographie et visualisation, Lyon, France, July 2019.

10.1.5. Scientific Expertise

- Evaluator for NSERC Discovery Grants (Canada): Anastasia Bezerianos, Olivier Chapuis

10.1.6. Research Administration

- Deputy Director of the Laboratoire de Recherche en Informatique (LRI): Olivier Chapuis
- President of Inria Saclay - Île de France's Commission for Technological Development (CDT): Emmanuel Pietriga
- Deputy head of Pôle "Données, Connaissances, Apprentissage et Interaction" at École Doctorale Paris Saclay (ED STIC): Caroline Appert
- Member of Conseil de Département (LRI): Anastasia Bezerianos
- Member of Commissions Consultatives de Spécialités d'Université (CCSU) at Université Paris-Sud/Paris Saclay: Anastasia Bezerianos

10.1.7. Learned societies

- Association Francophone d'Interaction Homme-Machine (AFIHM), in charge of the relation with the SIF: Olivier Chapuis.
- SigCHI Paris Local Chapter, chair: Caroline Appert.

10.1.8. Hiring committees

- MCF Hiring committee, Univ. Paris Sud - LIMSI: Caroline Appert
- MCF Hiring committee, Univ. Technologique Troyes - Tech-CICO: Caroline Appert

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Ingénieur: Emmanuel Pietriga, Data Visualization (INF552), 36h, 3A/M1, École Polytechnique.

Ingénieur: Caroline Appert, Data Visualization (INF552), 18h, 3A/M1, École Polytechnique.

Ingénieur: Vanessa Peña-Araya, Data Visualization (INF552), 16h, 3A/M1, École Polytechnique.

Master: Emmanuel Pietriga, Data Visualization, 24h, M2 Informatique Décisionnelle, Univ. Paris-Dauphine.

Master: Caroline Appert, Evaluation of Interactive Systems (Advanced), 21h, M2 Interaction, Univ. Paris-Sud.

Master: Anastasia Bezerianos, Evaluation of Interactive Systems (Intro), 16h, M2 Interaction, Univ. Paris-Sud.

Master: Anastasia Bezerianos, Programming of Interactive Systems, 21h, M2 Interaction, Univ. Paris-Sud.

Master: Anastasia Bezerianos, Career Seminar, 21h, M2 Interaction, Univ. Paris-Sud.

Master: Anastasia Bezerianos, Augmented Reality and Tangible Interaction, 12h, M2 Interaction, Univ. Paris-Sud.

Master: Anastasia Bezerianos, Interactive Information Visualization, 10.5h, M2 Interaction, Univ. Paris-Sud.

Master: Anastasia Bezerianos, HCI Project, 21h, M2 Interaction and HCID, Univ. Paris-Sud.

Master: Anastasia Bezerianos, Intro aux Systèmes Interactives, 15h, M1 Informatique, Univ. Paris-Sud.

Master: Eugénie Brasier, Programming of Interactive Systems, 10h30, M2 Interaction and HCID, Univ. Paris-Saclay.

Master: Eugénie Brasier, Career Seminar, 10h30, M2 Interaction and HCID, Univ. Paris-Saclay.

Master: Emmanuel Courtoux, Fundamentals of HCI, 21h, M2 Interaction and HCID, Univ. Paris-Saclay.

Master: Emmanuel Courtoux, Digital Fabrication, 21h, M2 Interaction and HCID, Univ. Paris-Saclay.

Master: Raphaël James, Programming of Interactive Systems, 12h, Univ. Paris-Saclay.

Master: Raphaël James, Fundamentals of HCI, 21h, Univ. Paris-Saclay.

Master: Tong Xue, Design of Interactive Systems, 21h, Univ. Paris-Saclay.

Licence: Eugénie Brasier, Algorithmique, 18h, PeiP2, Polytech.

License: Raphaël James, Algorithm/C/C++, 2h, Polytech.

10.2.2. Supervision

PhD in progress : Emmanuel Courtoux, Tangible Collaborative Interaction for Wall-sized Displays, since October 2019, Advisors: Olivier Chapuis, Caroline Appert

PhD in progress : Eugénie Brasier, Interaction techniques for remote manipulation in multi-display environments, since October 2018, Advisors: Caroline Appert

PhD in progress : Raphaël James, Environnements de réalité physique et augmentée utilisés dans l'analyse visuelle collaborative, since October 2018, Advisors: Anastasia Bezerianos, Olivier Chapuis, Tim Dwyer

PhD in progress : Tong Xue, Interactive Visualization for Data Journalism, since October 2018, Advisors: Anastasia Bezerianos, Emmanuel Pietriga

PhD in progress : Marie Destandau, Interactive Visual Exploration of Webs of Data, since October 2017, Advisors: Emmanuel Pietriga

PhD (defended) : Anna Gogolou, Iterative and expressive querying for big data series, October 2016 - November 2019, Advisors: Anastasia Bezerianos, Themis Palpanas

PhD (defended [76]) : Hugo Romat, Visual exploration and interactive manipulation techniques for collections of heterogeneous data and documents, June 2016 - November 2019, Advisors: Caroline Appert, Emmanuel Pietriga

PhD Internship: Nicole Barbosa Sultanum (from University of Toronto), Navigation and exploration of multivariate and dynamic graphs, 3 months, Advisor: Anastasia Bezerianos

Master 2 Internship: Marzieh Rafiei, Wall displays in Virtual Reality, 6 months, Advisors: Olivier Chapuis

Master 2 Internship: Emmanuel Courtoux, Tangible interaction for wall displays, 6 months, Advisors: Olivier Chapuis, Caroline Appert

10.2.3. Juries

PhD: Thibault Raffaillac, Université de Lille: Emmanuel Pietriga (examinateur)

PhD: Yujiro Okuya, Université Paris-Sud: Caroline Appert (president)

PhD: Gaëlle Richer, Université de Toulouse: Caroline Appert (reviewer)

PhD: Khanh Duy Le, Chalmers University at Göteborg: Olivier Chapuis (reviewer)

10.3. Popularization

10.3.1. Articles and contents

- 2019-06-29: France 2 (TV) - 20h30 le samedi, Le premier pas sur la lune, https://www.france.tv/france-2/20h30-le-samedi/1016245-le-premier-pas-sur-la-lune.html

- 2019-06-12: Ciel & Espace - Sanctuary, le projet français qui vise à faire de la Lune un lieu de la mémoire humaine, https://www.cieletespace.fr/actualites/sanctuary-le-projet-francais-qui-vise-a-faire-de-la-lune-un-lieu-de-la-memoire-humaine

- 2019-05-13: France 2 (TV) - Télématin, Sanctuary (11'30-15'30), https://www.france.tv/france-2/telematin/981641-telematin.html

- 2019-04-22: France 3 (TV) - Soir 3, Humanité : la Lune comme sanctuaire, https://www.francetvinfo.fr/sciences/espace/humanite-la-lune-comme-sanctuaire_3411135.html

- 2019-03-29: Science & Avenir - Sanctuary : le projet fou d'envoyer un selfie ou sa dédicace sur la Lune, https://www.sciencesetavenir.fr/espace/systeme-solaire/sanctuary-le-projet-fou-d-envoyer-un-temoignage-artistique-et-scientifique-sur-la-lune_122541

- 2019-03-18: Inria.fr - Sanctuary : une trace sur la Lune pour le cinquantenaire de la mission Apollo 11, https://www.inria.fr/fr/sanctuary-pour-laisser-une-trace-sur-la-lune

- 2019-03-16: Ouest France - Climat. Ce que les Français font déjà, ce qu'ils se déclarent prêts à faire (Storifier), https://www.ouest-france.fr/politique/grand-debat-national/climat-ce-que-les-francais-font-deja-ce-qu-ils-se-declarent-prets-faire-6264587

- 2019-02-15: Métro parisien, La fresque du couloir de la station Montparnasse-Bienvenüe (ZRaildar), http://80ans.cnrs.fr/ressource/la-fresque/

<p align="center" style="color:red">IMAGINE Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

Rémi Ronfard is a member of the selection committee for Inria-MCC (Ministry of Culture and Communication) activities; and a member of the steering committee for the Eurographics workshop on intelligent cinematography and editing (WICED).

Stefanie Hahmann is a member of the Comité d'Etudes Doctorales (CED) at Inria Grenoble.

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Remi Ronfard and Julie Valéro (Litt & Arts, Univ. Grenoble Alpes) are chairing the first national meeting on computer theater (Journées d'Informatique Théâtrale), which will take place in Grenoble in February 2020.

Stefanie Hahmann was conference general co-chair for the ACM Symposium on Solid and Physical Modeling (SPM), Vancouver 2019.

10.1.1.2. Member of the Organizing Committees

Stefanie Hahmann was member of the organization committee of the SIAM Conference on Geometric Design, Vancouver 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

Mélina Skouras was a member of the Program Committees for ACM Siggraph Asia 2019 and Eurographics 2019.

Stefanie Hahmann was a member of the Program Committees for Symposium on Geometry Processing (SGP) 2019.

Rémi Ronfard was a member of the Program Committees for Motion, Interaction and Games (MIG) 2019, Intelligent Cinematography and Editing (WICED) 2019, and EXPRESSIVE 2019.

10.1.2.2. Reviewer

Rémi Ronfard was a reviewer for Siggraph 2019 and Siggraph Asia 2019.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Stefanie Hahmann is an Associate Editor of CAG (Computers & Graphics, Elsevier) and CAD (Computer Aided Design, Elsevier).

10.1.3.2. Reviewer - Reviewing Activities

Mélina Skouras was a reviewer for ACM Siggraph 2019, ACM Transactions on Graphics (TOG) and the International Journal for Numerical Methods in Engineering.

Stefanie Hahmann was a reviewer for Graphical Models (GMOD), Computers & Graphics (CAG) and Computer Aided Design (CAD).

Rémi Ronfard was a reviewer for ACM transactions on Graphics (TOG).

10.1.4. Invited Talks

Mélina Skouras gave an invited talk at the ACM/Eurographics Symposium on Computer Animation in July 2019.

Stefanie Hahmann gave an invited talk at the ARCADES workshop (Algebraic Representations in Computer-Aided Design for complEx Shapes) in Vienna, Austria, in November 2019.

10.1.5. Leadership within the Scientific Community

Remi Ronfard and Julie Valéro (Litt & Arts, Univ. Grenoble Alpes) are animating a research group on Digital Dramaturgies as part of the Performance Lab, IDEX Univ. Grenoble Alpes (2018-2021). This research group is actively investigating (i) how contemporary dramaturgies represent digital worlds on stage; (ii) how contemporary dramaturgies use digital tools for writing and staging performances combining real actors with virtual actors and scenographies; and (iii) how contemporary dramaturgies can be digitally captured, indexed and analyzed for a better comprehension of the creative processes at work during pre-production and rehearsals. The research group is composed of researchers of Univ. Grenoble Alpes from multiple disciplines, i.e. litterature, theatre, choreography, film studies, social sciences, geography, computer science and applied mathematics.

Stefanie Hahmann is the head of the French working group GTMG (Groupe de travail en Modélisation Géométrique) part of the CNRS GDR IM and GDR IGRV.

10.1.6. Scientific Expertise

Stefanie Hahmann was a member af the Advisory Board of the European ITN-ETN Marie-Curie Training Network ARCADES on Algebraic Representations for Computer-Aided Design of Complex Shapes from 2015 until 2019.

Stefanie Hahmann was a member of the selection committees for the SMA Young Investigator Award, Solid Modeling Association.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Bachelor : Stefanie Hahmann, Numerical Methods, 42 HETD, 240 students, L3, Ensimag-Grenoble INP.

Master : Stefanie Hahmann, Geometric Modeling, 47 HETD, 60 students, M1, Ensimag-Grenoble INP.

Master : Stefanie Hahmann, Surface Modeling, 37 HETD, 30 students, M2, Ensimag-Grenoble INP.

Master: Mélina Skouras, Surface modeling, 14.5 HETD, M2, Ensimag, Grenoble, France

Master: Mélina Skouras, Numerical Mechanics, 8 HETD, M2, ENS de Lyon, France

Master: Rémi Ronfard teaches computer animation to MOSIG M2 students, 18 HETD, Grenoble INP, Univ. Grenoble Alpes.

PhD: Rémi Ronfard is an associate researcher in the Spatial Media team at ENSADLAB, where he teaches computer graphics to doctoral art students in the SACRE doctoral school, 60 HETD, Univ. Paris Sciences et Lettres (PSL).

Stefanie Hahmann is co-responsible of the department MMIS (Images and Applied Maths) at Grenoble INP with 120 students. Stefanie Hahmann was also president of the jury for over 20 Masters (PFE) thesis defences in 2019.

10.2.2. Supervision

PhD: Geoffrey Guingo, Synthesis of animated textures, supervised by Marie-Paule Cani, Jean-Michel Dischler and Basile Sauvage, was defended on December 3, 2019.

PhD: Amélie Fondevilla, Modélisation et animation de surfaces développables, supervised by Stefanie Hahmann and Damien Rohmer, was defended on Decembre 18, 2019.

PhD: Maxime Garcia, Animation transfer: character animation by playing and acting, since October 2016, supervised by Rémi Ronfard, was defended on December 19, 2019.

PhD in progress : Youna Le Vaou, Virtual Sculpture: shape creation and modification through immersive CAVE-like systems, since March 2017, supervised by Jean-Claude Léon and Stefanie Hahmann. Funded by CIFRE contract with PSA

PhD in progress : Ameya Murukutla, Storyboarding augmented reality anatomy lessons, since Octobre 2017, supervised by Rémi Ronfard and Olivier Palombi

PhD in progress : Pierre Casati, Modeling and animation of antique statues, since October 2017, supervised by Rémi Ronfard and Stéfanie Hahmann

PhD in progress : Qianqian Fu, Computational video editing of live performances, since November 2018, supervised by Rémi Ronfard and Benjamin Lecouteux (GETALP, LIG).

PhD in progress : Thomas Buffet, Efficient multi-layered cloth animation using implicit surfaces, since December 2017, supervised by Marie-Paule Cani and Damien Rohmer.

PhD in progress : Nachwa Aboubakr, Observation and modeling of human activities, since October 2016, supervised by James Crowley and Rémi Ronfard.

PhD in progress: David Jourdan, Design of free-from surfaces using self-actuated materials, since October 2018, supervised by Adrien Bousseau and Mélina Skouras.

PhD in progress: Mickaël Ly, Inverse elastic shell design with contact and friction with applications to garment design, since October 2017, supervised by Florence Descoubes and Mélina Skouras.

Master's thesis: Mélanie Carrière, 3D Design of Ancient Garments, June 2019, supervised by Mélina Skouras and Stefanie Hahmann.

Master's thesis: Shalu Dwivedi, Simulation of Laser-Cut Metamaterials, August 2019, supervised by Mélina Skouras.

Master thesis: Paul-Elian Tabarant, student at Telecom ParisTech, 3D sketching in virtual reality, July 2019, subervised by Stefanie Hahmann and Georges-Pierre Bonneau.

M1 Internship: Marion Taconné, Extensions to the aeroMorph Project, September 2019, supervised by Mélina Skouras.

M1 IRL: Manon Valle, Study of different norms for modeling inverse problems, May 2019, supervised by Mélina Skouras.

M1 IRL: Nathan Shourick, Existence of solutions to design inverse problems, May 2019, supervised by Mélina Skouras, Florence Bertails-Descoubes and Mickaël Ly.

10.2.3. Juries

Stefanie Hahmann was part of the jury CRCN 2019 at Inria Rennes, April 2019.

Stefanie Hahmann was member of the HDR committee a reviewer of the HDR Thesis of Alexandra Bac at Univ. Aix-Marseille.

Stefanie Hahmann also was a reviewer of 2 PhD theses, Université de Strasbourg (Cedric Bobenrieth) and Université de Bourgogne (Lucas Morlet) in 2019.

Stefanie Hahmann was an external reviewer of the PhD thesis of Alessandro Marro at University of Kaiserslautern, Germany.

LACODAM Project-Team

10. Dissemination

10.1. Scientific Events: Organisation

10.1.1. General Chair, Scientific Chair

- Elisa Fromont was one of the general chairs of ECML/PKDD 2019 that took place in Würzburg, Germany (Sept).
- Tassadit Bouadi was co-chair of the ECML/PKDD'2019 PhD Forum
- Tassadit Bouadi and Luis Galárraga are organizers of the two editions of the AIMLAI workshop (Advances in Interpretable Machine Learning and Artificial Intelligence) colocated with the conferences EGC (https://project.inria.fr/aimlai/) and ECML/PKDD (https://kdd.isti.cnr.it/xkdd2019/) 2019 respectively.
- AALTD@ECML (T. Guyet), https://project.inria.fr/aaltd19/
- GAST@EGC (T. Guyet), https://gt-gast.irisa.fr/gast-2019/
- GeoInformation Analytics Technical Track at the ACM/SIGAPP Symposium On Applied Computing (T. Guyet), https://gia.sciencesconf.org/
- Time series days, https://project.inria.fr/tsdays/ (T. Guyet)

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- KDD (A. Termier, E. Fromont)
- ICTAI (T. Guyet)
- ECAI (T. Bouadi)
- ECML-PKDD (T. Guyet, A. Termier, E. Fromont, T. Bouadi)
- IJCAI (T. Guyet, A. Termier)
- SDM (A. Termier)
- MedInfo (T. Guyet)
- EGC (T. Bouadi, T. Guyet)
- HiPC (A. Termier)
- APIA (C. Largouët)
- CAp (R. Gaudel)
- ISWC (L. Galárraga)
- LDK (L. Galárraga)

10.1.2.2. Reviewer

- ECML-PKDD (C. Largouët)
- ICML (R. Gaudel)
- NeurIPS (R. Gaudel)
- LOD (R. Gaudel)
- ICTAI (L. Galárraga)
- BDA (L. Galárraga)

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

- Pattern Recognition (R. Gaudel)
- Revue d'intelligence artificielle (R. Gaudel)
- Data Mining and Knowledge Discovery (L. Galárraga, A. Termier)
- Semantic Web Journal (L. Galárraga)
- Remote Sensing (T. Guyet)
- Journal of Biomedical Informatics (T. Guyet)

10.1.4. Invited Talks

- Signatures: detecting and characterizing recurrent behavior in sequential data (A. Termier, March 2019). Invited talk to the Exploratory Data Analysis group of Jilles Vreeken, Saarebruck University.
- Pattern Mining with MDL (A. Termier, May 2019). Talk at the Dagstuhl seminal on Enumeration in Data Management.
- (Random) Search in a Structured Space (R.Gaudel, Oct. 2019). GdR IA course, Paris, France.
- Recommendation as a sequential process (R. Gaudel, June 2019). Obelix, Vannes, France.
- Litterature review: From computational complexity of function optimization to large scale Machine Learning (R. Gaudel, June 2019). Thematic season on the topic COMPLEXITY, IRISA, Rennes, France
- Interpretability in Classifiers (L. Galárraga, May 2019). Journée EGC&IA, Orsay, France.
- Mining sequential patterns with ASP (T. Guyet, January 2019). LERIA, Angers, France. 6/12/2019: Master Class at La Digital Tech Conference on "IA, Machine learning et Deep learning : démêlons les concepts !", Rennes.
- (E. Fromont) 25/11/2019: Participation in the panel organized by EIT Digital for the "Industrial Doctorate meetup: Boosting business with data science", Rennes.
- (E. Fromont) 8/10/2019: Invited speaker for Planète conférence on "Mythes et réalités de l'I.A.", Vannes.
- (E. Fromont) 9/09/2019: Participation in the workshop "Smart-cities et mobilités" of the Forum Européen d'Intelligence Artificielle Territoriale organised by the CHEMI, Rambouillet, Fr.
- (E. Fromont) 5/07/2019: Participation in the panel organized by Google numérique on "Intelligence artificielle, opportunités diverses et défis communs?", Rennes.
- (E. Fromont) 1/07/2019: Participation in the panel organized by EIT summer school "Unleashing the power of data for better cities" on "Future of smart cities and data innovation", Rennes.
- (E. Fromont) 6/06/2019: Invited speaker for Breizh Conseil on "Mythes et réalités de l'I.A.", Rennes (with a video teaser)
- (E. Fromont) 5/06/2019: Invited speaker for the "journées nationales MIAGE" (JNM2019) on "Mythes et réalités de l'I.A.", Rennes.
- (E. Fromont) 23/05/2019: Invited speaker for ESTIM NUMERIQUE on "Qu'est ce que l'I.A.", Rennes.
- (E. Fromont) 31/01/2019: Invited speaker for the Ecole Navale Science Day 2019 JSN'19 on "New Challenges in Computer Vision", Brest.
- (E. Fromont) 26/01/2019: Invited speaker for the Digital transformer Challenge (Introduction to AI), Rennes.

10.1.5. Scientific Expertise

Scikit-Mine. The team recently secured a two-year engineer position (Inria ADT grant) for working on MDL-based pattern mining algorithms. The goal of the project is to design a modern pattern mining library fully compatible with scikit-learn (the major data science library). The library will contain major MDL-based pattern mining algorithms of the state of the art, including those developed in the team (periodic pattern mining). The project will start in fall 2020.

10.1.6. Research Administration

- Alexandre Termier is member of the Scientific Committee of the "Environment and Agriculture" department of INRA (now INRAe).
- (E. Fromont) Member of an HCERES evaluation committee.
- (E. Fromont) Member of the executive board of the CominLabs LABEX for the "Data, IA and Robotics" scientific axis.
- (E. Fromont) Elected at the scientific council of the Société Savante Francophone d'Apprentissage Machine.
- (E. Fromont) Nominated at the CNRS INS2I ("INstitut des Sciences de l'Information et de leurs Interactions") scientific council (CSI)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Some members of the project-team LACODAM are also faculty members and are actively involved in computer science teaching programs in ISTIC, INSA and Agrocampus-Ouest. Besides these usual teachings LACODAM is involved in the following programs:

Master 2 IL, CCN: Option Machine Learning, Istic, University of Rennes 1, 32h (E. Fromont)

Master 2 DMV Module: Data Mining and Visualization, 13h, M2, Istic, University of Rennes 1 (A. Termier)

Master 2 Big Data, 30h, Master Datascience, University of Rennes 2 & Agrocampus Ouest (C. Largouët)

Master 2 DataViz with R, 10h, Master Datascience, University of Rennes 2 & Agrocampus Ouest (L. Bonneau de Beaufort)

Master 1 SIF: Option IA, Istic, 20h, University of Rennes 1 (A. Termier, E. Fromont, T. Bouadi)

Master 1 Scientific Programming, 25h, Agrocampus Ouest (C. Largouët)

Master 1 Data Management, 25h, Agrocampus Ouest (C. Largouët)

Master : R. Gaudel, Apprentissage profond, 9h eq. TD, M2, ENSAI, France

Master : R. Gaudel, Neural Networks, 4,5h eq. TD, école d'été, ENSAI, France

Master : R. Gaudel, Systèmes de recommandation, 27h eq. TD, M2, ENSAI, France

Master : R. Gaudel, Bandits Theory, 9h eq. TD, M2, ENSAI, France

Master : R. Gaudel, Bandits Theory, 4,5h eq. TD, école d'été, ENSAI, France

Master : R. Gaudel, INFO2, 30h eq. TD, M1, ENS, France

Master : T. Guyet, Spatial data science and GIS programming, Agrocampus-Ouest/Rennes University, France

10.2.2. Supervision

PhD (defended 25/09/2019): Guillaume Metzler, "Learning from Imbalanced Data: An Application to Bank Fraud Detection", 15/01/2016, E. Fromont, M. Sebban, A. Habrard.

PhD (defended 16/12/2019): Kevin Bascol, "Multi-source domain adaptation on imbalanced data:application to the improvement of chairlifts safety", 1/11/2016, E. Fromont,R. Emonet.

PhD (defended 16/12/2019): Maël Guillemé, "New Data Mining Approaches for Improving Energy Consumption in Factories", 03/10/2016, L. Rozé, V. Masson, A. Termier

PhD (defended 19/12/2019): Alban Siffer, "Data Mining Approaches for Cyber Attack Detection", 03/2016, P-A Fouque, A. Termier, C. Largouët.

PhD in progress: Maël Gueguen, "Improving the Performance and Energy Efficiency of Complex Heterogeneous Manycore Architectures with On-chip Data Mining", 01/11/2016, O. Sentieys, A. Termier

PhD in progress: Raphaël Gauthier, "Modelling of Nutrient Utilization and Precision Feeding of Lactating Sows", 01/11/2017, C. Largouët, J.-Y. Dourmad

PhD in progress: Kévin Fauvel, "Using Data mining Techniques for Improving Dairy Management", 01/10/2017, V. Masson, A. Termier, P. Faverdin

PhD in progress: Heng Zhang, "Deep Learning on Multimodal Data for the Supervision of Sensitive Sites", 03/12/2018, E. Fromont, S. Lefevre

PhD in progress: Yichang Wang, "Interpretable Shapelet for Anomaly Detection in Time Series", 15/04/2018, E. Fromont, S. Malinowski, R. Tavenard, R. Emonet

PhD in progress: Camille-Sauvanneary Gauthier, Session-aware Recommendation System, since March 15. 2019, advisors: É. Fromont, R. Gaudel, & B. Guilbot

PhD in progress: Erwan Bourrand, Interactive Data Mining for Root Cause Analysis of Performance Issues in Networks, advisors: E. Fromont, L. Galárraga, A. Termier.

PhD in progress: Gregory Martin, Data mining to optimize a free-floating car sharing service: E. Fromont, L. Rozé, A. Termier.

PhD in progress: Johanne Bakalara, Temporal models of care sequences for the exploration of medico-administrative data, advisors: E. Oger, O. Dameron, T. Guyet, A. Happe

PhD in progress: Colin Leverger, Management and forecasting of measures for server optimization in a cloud context, advisors: A. Termier, R. Marguerie, S. Malinowski, T. Guyet, L. Rozé.

PhD in progress: Nicolas Sourbier, Log Analysis Using Reinforcement Learning for Intrusion Detection, advisors: F. Majorczyke, O. Gesny, T. Ollivier, M. Pelcat, T. Guyet.

PhD in progress: Yiru Zhang, Modeling and management of imperfect preferences with the theory of belief functions, advisors: T. Bouadi, A. Martin.

10.2.3. Juries

- PhD Justine Reynaud (Orpailleur, Inria Nancy, Université de Lorraine): Découverte de définitions dans le web des données (L. Galárraga, examiner, december 2019).

- PhD Anes Bendimerad (INSA Lyon): Mining useful patterns in attributed graphs (A. Termier, reviewer, september 2019)

- HDR Frédéric Flouvat (Université de Nouvelle Calédonie): Extraction de motifs spatio-temporels: co-localisations, séquences et graphes dynamiques attribués (A. Termier, reviewer, october 2019)

- HDR Christine Largouët (Université de Rennes 1): Intelligence Artificielle pour l'aide à la décision des systèmes dynamiques: diagnostic, prévision, recommandation d'actions (A. Termier, examiner, december 2019)

- PhD Ricardio Sperandio (Université de Rennes 1): Time series retrieval using DTW-preserving shapelets (A. Termier, examiner, december 2019)

- PhD Raphaël Jakse (Université Grenoble Alpes): Interactive runtime verification (A. Termier, reviewer, december 2019)

- (E. Fromont) Ziyu GUO, Marseille 5/11/2019 (committee member); Jordan Frery, Saint-Etienne 26/09/2019 (committee member, president); Julien Salotti, Lyon 24/09/2019 (reviewer); Xuhong Li, Compiègne (committee member, president) 10/99/2019; Michele Linardi, Paris (committee member) 21/08/2019; Pauline Luc, Grenoble (committee member, president) 25/06/2019, Diogo Luvizon, Cergy (reviewer) 8/04/2019; Zaruhi Alaverdyan, Lyon (committee member, president) 18/01/2019

- PhD Trung-Dung Le (Shaman, IRISA, Université de Rennes 1): Gestion de masses de données dans une fédération de nuages informatiques (T. Bouadi, examiner, july 2019)

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- (E. Fromont) 2018- ?: Nominated at the scientific council of the "Fondation Blaise Pascal" (dedicated to scientific mediation, funded by Inria)

10.3.2. Education

- In 2019, Alexandre Termier and Elisa Fromont are co-heads of a special training for high school teachers, ordered by the Ministry of Education. From September 2019, French high school students will have the opportunity to have reinforced Computer Science courses, with the same importance as Mathematics or Physics for example. As new teachers are not yet hired to teach theses courses, there was thus an urgent need to train existing high school teachers so that they can train the new teachers. A national formation has been set up, with some coordination between all universities. Alexandre and Elisa represent the University of Rennes, which is the formation center for all of Britany. The formation load is 125 teaching hours, to a group of 71 high school teachers.

- Elisa Fromont is also leading the set up of a CAPES in University of Rennes 1, which will allow to prepare future high school teachers in computer science.

10.3.3. Interventions

- A. Termier participated at a mediation action on Artificial Intelligence for a general technical public, the "Trial of metro car number 42", at the Digital Tech in Rennes (november 2019, https://www.ladigital.tech/proces-rame-metro-numero-42/)

- Alexandre Termier did two 2h interventions at the Emile Zola high school, aimed at math teachers. The topics were "Artificial Intelligence" and "Big Data".

- (E. Fromont) 6/12/2019: Master Class at La Digital Tech Conference on "IA, Machine learning et Deep learning : démêlons les concepts !", Rennes.

LARSEN Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Conference Chair for the 30th International Conference on Automated Planning and Scheduling (ICAPS 2020), which will take place in Nancy in June 2020 (https://icaps20.icaps-conference.org/) [Olivier Buffet].
- Co-chair and co-organizer with Olivier Simonin the JNRR (National bi-annual conference on Robotics) 2019, in Vittel [François Chapillet]

10.1.1.2. Member of the Organizing Committees

- Conference "Drôles d'objets - Un nouvel art de faire 2020" that will take place in La Rochelle in april 2020 [Amine Boumaza, co-organizer]
- Workshop at the International Conference on Robotics and Automation (ICRA 2019) (*Human movement science for physical human-robot collaboration)* [Pauline Maurice and Serena Ivaldi, co-organizers]
- Local Organization Committee of the 30th International Conference on Automated Planning and Scheduling (ICAPS 2020) [Vincent Thomas]
- Workshop "Women in Robotics V" at the international conference Robotics: Science and Systems (RSS 2019) [Serena Ivaldi]
- Workshop "Tele-operation of Humanoid Robots" at IEEE-RAS International Conference on Humanoid Robots (HUMANOIDS 2019) [Serena Ivaldi]

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Program chair of the 2019 IEEE-RAS International Conference on Humanoid Robots (Toronto, Canada) [Serena Ivaldi]
- Co-chair of the track "Evolutionary Machine Learning" at GECCO 2019 (Prague, Czech Republic) [Jean-Baptiste Mouret]

10.1.2.2. Awards Chair of Conference Program Committees

- Awards co-chair of the 12th International Workshop on Human-Friendly Robotics (HFR 2019) [Serena Ivaldi]

10.1.2.3. Member of the Conference Program Committees

- 24th European Conference on Artificial Intelligence (ECAI 2020) [Francis Colas, Vincent Thomas, F. Charpillet]
- 36th International Conference on Machine Learning (ICML 2019) [Olivier Buffet]
- 28th International Joint Conference on Artificial Intelligence (IJCAI 2019) [Olivier Buffet, Vincent Thomas]
- *Journées Francophones sur la Planification, la Décision et l'Apprentissage pour la conduite de systèmes* (JFPDA 2019) [Olivier Buffet, Vincent Thomas]
- 34th AAAI Conference on Artificial Intelligence (AAAI 2020) [Olivier Buffet, F. Charpillet]
- 33th AAAI Conference on Artificial Intelligence (AAAI 2019) [Olivier Buffet, F. Charpillet]

- ALIFE 2019 (European Conference on Artificial Life) [Amine Boumaza, Jean-Baptiste Mouret]
- GECCO 2019 (Genetic and Evolutionary Computation Conference) [Amine Boumaza, Jean-Baptiste Mouret]
- EA 2019 (Artificial Evolution) [Amine Boumaza, Jean-Baptiste Mouret]
- IEEE/RAS International Conference on Robotics and Automation (ICRA 2020) [Pauline Maurice – Associate editor]
- 12th International Workshop on Human-Friendly Robotics (HFR 2019) [Pauline Maurice]
- 27emes Journées Francophones sur les Systèmes Multi-Agents (JFSMA 2019)[François Charpillet]
- 11th International Conference on Agents and Artificial Intelligence (ICAART 2019)[François Charpillet]

10.1.2.4. Reviewer

- Robotics: Science and Systems (RSS 2019) [Francis Colas, Serena Ivaldi]
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2019) [Francis Colas, Pauline Maurice, Jean-Baptiste Mouret]
- IEEE International Conference on Robotics and Automation (ICRA 2020) [Pauline Maurice, Jean-Baptiste Mouret]
- IEEE-RAS International Conference on Humanoid Robots (Humanoids 2019) [Francis Colas, Jean-Baptiste Mouret]
- 24th European Conference on Artificial Intelligence (ECAI 2020) [Francis Colas, Vincent Thomas, François Charpillet]
- 36th International Conference on Machine Learning (ICML 2019) [Olivier Buffet, Vincent Thomas]
- 28th International Joint Conference on Artificial Intelligence (IJCAI 2019) [Olivier Buffet, Vincent Thomas]
- *Journées Francophones sur la Planification, la Décision et l'Apprentissage pour la conduite de systèmes* (JFPDA 2019) [Olivier Buffet, Vincent Thomas]
- 34th AAAI Conference on Artificial Intelligence (AAAI 2020) [Olivier Buffet]
- 33th AAAI Conference on Artificial Intelligence (AAAI 2020) [François Charpillet]
- IEEE International Conference on Advanced Robotics ans its Social Impacts (ARSO 2019) [Pauline Maurice]
- Conference on Robot Learning (CoRL 2019) [Jean-Baptiste Mouret]
- ACM WomeENcourage 2019 [Serena Ivaldi]
- 27emes Journées Francophones sur les Systèmes Multi-Agents (JFSMA 2019)[François Charpillet]
- 11th International Conference on Agents and Artificial Intelligence (ICAART 2019)[François Charpillet]

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- IEEE Robotics and Automation Letters [Serena Ivaldi – associate editor]
- ACM Transactions on Evolutionary Learning and Optimization [Jean-Baptiste Mouret – associate editor]
- Frontiers in AI and Robotics – review editors [Amine Boumaza, Jean-Baptiste Mouret]

10.1.3.2. Reviewer - Reviewing Activities

- Artificial Intelligence Journal (AIJ) [Olivier Buffet]
- Journal of Artificial Intelligence Research (JAIR) [Olivier Buffet].
- Genetic Programming and Evolvable Machines [Amine Boumaza]

- Robotica [Francis Colas]
- Robotics and Automation Letter [Francis Colas, Jean-Baptiste Mouret]
- Artificial Life [Jean-Baptiste Mouret]
- ACM Transactions on Evolutionary Learning and Optimization (TELO) [Jean-Baptiste Mouret]
- ACM Transactions on Human-Robot Interaction [Pauline Maurice]
- PloS One [Pauline Maurice]
- Paladyn Journal of Behavioral Robotics [Pauline Maurice]
- The Journal on Multimodal User Interfaces [Pauline Maurice]
- Frontiers in Neurorobotics [Serena Ivaldi]
- IEEE Robotics and Automation Magazine [Serena Ivaldi]

10.1.4. Invited Talks

- Keynote at the 10th International Conference on Information, Intelligence, Systems and Applications, Patras (Greece) [Jean-Baptiste Mouret]
- Keynote at the 12th International Workshop on Human-Friendly Robotics (HFR 2019) in Reggio Emilia (Italy) [Serena Ivaldi]
- Invited talk at the Conference on "Novel technological innovations for occupational safety and health" organised by the Polish Central Institute for Labour Protection – National Research Institute (CIOP-PIB), Warsaw (Poland) [Pauline Maurice]
- Invited talk at the workshop on "Closing the Reality Gap in Sim2real Transfer for Robotic Manipulation" at RSS 2019, Freiburg (Germany) [Jean-Baptiste Mouret]
- Invited talk at the CNRS GDR ISIS (Information, Signal, Image et ViSion), special day on robot learning, Paris (France) [Jean-Baptiste Mouret]
- talk at Workshop on "Task-Informed Grasping" at RSS 2019,Freiburg (Germany) [Serena Ivaldi]
- invited talk at the HUMANOIDS 2019 Workshop "Can we build Baymax?", Toronto (Canada) [Serena Ivaldi]
- invited talk at HUMANOIDS 2019 Workshop on "Humanoid Teleoperation", Toronto (Canada) [Serena Ivaldi]
- invited talk at the HUMANOIDS 2019 Workshop on "Challenges and solutions for HRI and collaboration", Toronto (Canada) [Serena Ivaldi]
- invited talk at the IROS 2019 "Cutting Edge Forum on Cognitive architecture for humanoids: where are we in our quest to achieve human-level AI in robotics?", Macau (China) [Serena Ivaldi]
- invited talk at the IROS 2019 Workshop on "Progress in Ergonomic Physical Human-Robot Collaboration", Macau (China) [Serena Ivaldi]
- invited talk at the IROS 2019 Workshop on "Open-Ended Learning for Object Perception and Grasping: Current Successes and Future Challenges", Macau (China) [Serena Ivaldi]

10.1.5. Research Administration

- Serena Ivaldi is member of the scientific council of the Federation Charles Hermite
- Jean-Baptiste Mouret is a member of the "Bureau du Comité des Projets" of Inria Nancy – Grand-Est
- François Charpillet is member of the scientific commitee of the Robotic GDR (All the teams in France contributing to research in Robotics are members of the Groupe de Recherche (GDR) en Robotique, an open national Research Group established by the CNRS).
- François Charpillet is co-leading with Pr Rossignol the SCIARAT plateform of the CPER IT2MP

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Alexis Scheuer, "Introduction à la robotique autonome", 30h eq. TD, M1 informatique, Univ. Lorraine, France.

Master: Alexis Scheuer, "Vie artificielle", 22,5h eq. TD, 3ème année, CentraleSupélec, France.

Master: Francis Colas, "Robotique autonome", 18h eq. TD, M2 "Systèmes Interactifs et Robotiques", CentraleSupélec, France.

Master: Francis Colas, "Planification de trajectoires", 12h eq. TD, M2 "Apprentissage, Vision, Robotique", Univ. Lorraine, France.

Master: Alexis Scheuer, "Modélisation et commande en robotique", 16h eq. TD, M2 "Apprentissage, Vision, Robotique", Univ. Lorraine, France.

Master: Francis Colas, "Autonomous Robotics", 39.5h eq. TD, M1, CentraleSupélec, France.

Master: Pauline Maurice, "Analyse Comportementale", 10h eq. TD, M2 "Sciences Cognitives", Univ. Lorraine, France.

Master: Jean-Baptiste Mouret, "Creative automatic design", 3h, M2, M2 "Management de l'innovation", Mines de Paris, France

Master: Serena Ivaldi, "Analyse Comportementale", 16h CM/TD, M2 "Sciences Cognitives", Univ. Lorraine, France.

Master: Amine Boumaza, "Méta-heuristiques et recherche locale stochastique", 30h eq. TD, M1 informatique, Univ. Lorraine, France.

Tutorial: Olivier Buffet, "Planification dans l'incertain", 3h CM, CNRS Formation Entreprise.

Tutorial, Jean-Baptiste Mouret, "Evolutionary robotics", 3h, ACM GECCO 2019 (with S. Doncieux and N. Bredeche, Sorbonne Université)

10.2.2. Supervision

PhD in progress: Adrien Malaisé, "*Capteurs portés dans la robotique collaborative : de l'apprentissage du mouvement à l'acceptabilité de cette technologie*", started in January 2017, Francis Colas (advisor), Serena Ivaldi (co-advisor).

PhD in progress: Yang You, "*Modèles probabilistes pour la collaboration humain-robot*", started in October 2019, Olivier Buffet (advisor), Vincent Thomas (co-advisor)

PhD canceled: Jérôme Truc, "*Apprentissage de comportement et interactions prédictives pour un robot d'assistance en environnement structuré*", started in September 2018, canceled in July 2019, Francis Colas (advisor)

PhD in progress: Rituraj Kaushik, "*Damage recovery by trial and error and multiple simulation priors*", started in October 2016, Jean-Baptiste Mouret (advisor)

PhD in progress: Adam Gaier, "*Surrogate-based illumination for aerodynamics*", started in October 2016, Jean-Baptiste Mouret (Advisor)

PhD in progress: Vladislav Tempez, "*Learning to fly a micro-UAVs in highly confined environments*", started in October 2018, Jean-Baptiste Mouret (advisor), Franck Ruffier (co-advisor, CNRS/Aix-Marseille Université)

PhD in progress: Waldez Azevedo Gomes Junior, "*Intelligent Human-Robot collaboration*", started in October 2018, Jean-Baptiste Mouret (advisor), Serena Ivaldi (co-advisor)

PhD in progress: Yoann Fleytoux, "*Human-guided manipulation learning of irregular objects*", started in April 2019, Jean-Baptiste Mouret (advisor), Serena Ivaldi (co-advisor)

PhD in progress: Luigi Penco, "*Intelligent whole-body tele-operation of humanoid robots*", started in April 2019, Jean-Baptiste Mouret (advisor), Serena Ivaldi (co-advisor)

PhD in progress: Lorenzo Vianello, "*Adaptation in human-robot collaboration*", started in December 2019, Alexis Aubry (advisor, CRAN, Univ. Lorraine), Serena Ivaldi (co-advisor)

PhD in progress : Yassine EL Khadiri, Cifre with Diatelic, "*Machine learning for Ambient Assisted Living (AAL)*", started in June 2017, François Charpillet adviser.

PhD in progress : Eloise Zehnder, "*Elderly-technology interaction: accessibility and acceptability of assistive technology (at) at home*", started October 2018, François Charpillet (advisor), Jérome Dinet (advisor, 2LPN).

PhD in progress : Julien Uzzan, Cifre with PSA, "*navigation of an autonomous vehicle in a complex environment using unsupervised or semi-supervised learning*", started in January 2019, François Charpillet (advisor), François Aioun (co-advisor, PSA).

PhD in progress : Jessica Colombel, "*Analysis of human movement for assistance*", started in Feburary 2019, François Charpillet (advisor) David Daney(advisor, Auctus team, Bordeaux)

PhD in progress : Nicolas Gauville, CIFRE with SAFRAN, "*Coordination of autonomous robots evolving in unstructured and unknown environment for Search and Rescue*", started in May 2019, François Charpillet (advisor), Christophe Guettier (co-adviser, Safran).

10.2.3. Juries

- François Charpillet was a reviewer for the HDR of Antony Fleury (Lille University)
- François Charpillet was a reviewer for the HDR of François Portet (LIG, Grenoble Alpes University)
- Pauline Maurice was an examinator for the PhD of Nolwenn Briquet-Kerestedjian (Univ. Paris-Saclay)
- Jean-Baptiste Mouret was a reviewer for the PhD of Christophe Reymann (INSA Toulouse / LAAS)
- Jean-Baptiste Mouret was a reviewer for the PhD of Daniele Gravina (University of Malta)
- Serena Ivaldi was an examiner for the PhD of Rohan Budhiraja (LAAS)
- François Charpillet was a reviewer for the PhD of Facundo Benavides Olivera (ISAE, Toulouse University & Universidad de la República, Uruguay)
- François Charpillet was a reviewer for the PhD of Mehdi Othmani-Guibourg (Sorbonne University)
- François Charpillet was a reviewer for the PhD of Sandra Castellanos (LIG, Grenoble Alpes University)
- François Charpillet was a examiner for the PhD of Pavan Vasishta(Grenoble Alpes University)

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Amine Boumaza is a member of the editorial board of "Interstice".

10.3.2. Articles and contents

- Pauline Maurice gave an interview for Radio Canada (radio).
- Serena Ivaldi gave an interview to France 3 (TV) during the inauguration of the Creativ'Lab.

10.3.3. Education

- Vincent Thomas gave a tutorial on path planning for teachers during "journées ISN-EPI 2019" (Nancy, France).

10.3.4. Interventions

- Public workshop on robot programming with Thymio at "Fête de la Science" [Alexis Scheuer, Olivier Buffet, Jessica Colombel, Francis Colas, Yassine El Khadiri, Vincent Thomas, Yang You]
- Pauline Maurice gave a talk at the Forum Sciences Cognitives 2019 in Université de Lorraine.
- Jean-Baptiste Mouret was invited to debate about artificial intelligence at "La Tronche en Biais", an online popularization channel (27k view for this video)
- Eloïse Dalin and Pierre Desreumaux participated to a "Café des Sciences" artificial intelligence and robotics at the "Cité des Sciences et de l'Industrie" (Paris)
- Serena Ivaldi participated to the "Fête de la Science" as tutor for school children in Inria/Loria

<p style="text-align:center">**LINKMEDIA Project-Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Laurent Amsaleg is general co-chair of ACM Intl. Conf. on Multimedia 2019.
- Guillaume Gravier is technical program co-chair for ACM Intl. Conf. on Multimedia 2019.

10.1.1.2. Member of the Organizing Committees

- Yannis Avrithis is workshops co-chair for ACM Intl. Conf. on Multimedia 2019.
- Simon Malinowski is member of the organizing commitee of the Advanced Analytics and Learning on Temporal Data workshop (Wurzburg, Sept. 2019)
- Vincent Claveau was Finance chair of SIGIR 2019, (Paris, July 2019)

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Vincent Claveau was co-chair of the text-mining workshop DeFT in Toulouse, July 2019

10.1.2.2. Member of the Conference Program Committees

- Laurent Amsaleg was a PC member of: Extraction et Gestion de Connaissances, ACM International Conference on Multimedia Retrieval, Multimedia Modeling, Content-Based Multimedia Indexing, IEEE International Conference on Multimedia & Expo, International Conference on Similarity Search and Applications, Multimedia Information Retrieval and Applications.
- Guillaume Gravier was PC member of: European Conf. on Information Retrieval, Intl. Symposium on Multimedia, ACM Intl. Conf. on Multimedia Retrieval, IEEE Workshop on Multimedia Modeling.
- Pascale Sébillot was a PC member of: Annual Meeting of the Association for Computational Linguistics (ACL), International Joint Conference on Artificial Intelligence on Artificial Intelligence (IJCAI), European Conference on Information Retrieval (ECIR), International Conference on MultiMedia Modeling (MMM), Terminologie et intelligence artificielle (TIA) workshop with TALN.
- Yannis Avrithis was PC member of: IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), International Conference on Computer Vision (ICCV). He has been selected as Outstanding Reviewer of ICCV (91 selected out of 2506 reviewers in total).
- Vincent Claveau was a PC member of: European Conference on Information Retrieval (ECIR), EMNLP (demo), ACL (demo), TexMine workshop with EGC, DeFT workshop with TALN, TalMed workshop with MEDINFO, CORIA.
- Simon Malinowski is member of the program commitee of the Advanced Analytics and Learning on Temporal Data workshop (Wurzburg, Sept. 2019)
- Ewa Kijak was a PC member of: ACM Intl. Conf. on Multimedia (area chair), Intl. Conf. on Content-Based Multimedia Indexing (CBMI)
- Teddy Furon was a PC member of: IEEE Workshop on Information Forensics and Security (WIFS), Int. Conf. on Similarity Search and Applications (SISAP), IEEE Int. Conf. on Acoustic Speech and Signal Processing (ICASSP), ACM Information Hiding & Multimedia Security (IHMMSEC).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Pascale Sébillot is editor of the Journal Traitement Automatique des Langues.
- Pascale Sébillot is member of the editorial board of the Journal Traitement Automatique des Langues.
- Vincent Claveau is Chief Editor of the ISTE journal RIDoWS
- Vincent Claveau is member of the editorial board of the journal Traitement Automatique des Langues (TAL)

10.1.3.2. Reviewer - Reviewing Activities

- Pascale Sébillot reviewed for Traitement Automatique des Langues.
- Vincent Claveau was a reviewer for: Multimedia Tools and Applications, Technique et Sciences Informatiques, Documents numériques, Traitement Automatique des Langues, RIDoWS
- Ewa Kijak was a reviewer for: Multimedia Tools and Applications, Remote Sensing journal
- Laurent Amsaleg was a reviewer for: IEEE Transactions on Information Forensics and Security, ACM Transactions on Information Systems.
- Pascale Sébillot was a reviewer for: Conference Traitement Automatique des Langues Naturelles (TALN).
- Simon Malinowski was a reviewer for the Data Mining and Knowledge Discovery (DAMI) journal, Springer.
- Teddy Furon was a reviewer for: Entropy (MDPI), IEEE Trans. on Dependable and Secure Computing, IEEE Trans. on Information Forensics and Security, IEEE Trans. on Pattern Analysis and Machine Intelligence, IEEE Trans. on Image Processing.

10.1.4. Invited Talks

- Vincent Claveau gave an invited talk at "La vie sociale du fake sur les espaces numériques", Tours, France, nov 2019.
- Ewa Kijak gave a talk on "Tampering detection in images to fight fake news" for the GFAIH (Global Forum on Artificial Intelligence for Humanity) in Paris, during the workshop "AI and information disorder".

10.1.5. Leadership within the Scientific Community

- Laurent Amsaleg is a member of the Steering Committee of SISAP for the 2016-2020 term
- Laurent Amsaleg is a member of the Steering Committee of ACM Multimedia for the 2020-2023 term
- Guillaume Gravier is a member of the scientific board of the pre-GDR Traitement Automatique des Langues.
- Pascale Sébillot is a member of the permanent steering committee of Conf. francophone Traitement Automatique des Langues Naturelles.
- Pascale Sébillot is a member of the board of the pre-GDR Traitement Automatique des Langues, leader of the Intermodality and Multimodality working group.
- Vincent Claveau is deputy head of the GdR CNRS MaDICS https://www.madics.fr
- Vincent Claveau is the finance head of ARIA https://www.asso-aria.org

10.1.6. Scientific Expertise

- Laurent Amsaleg has been involved in the writing of the "Rapport de la mission sur les outils de reconnaissance des contenus protégés et les plateformes de partage en ligne : état de l'art et propositions. Conseil supérieur de la propriété littéraire et artistique, Hadopi".

- Guillaume Gravier was auditioned by the EC for the report "Towards European Media Sovereignty: An industrial media strategy to leverage data, algorithm and artificial intelligence" by Guillaume Klossa, special advisor to EC VP Andrus Ansip.
- Guillaume Gravier was appointed by Technical University of Delft as an evaluator for a professorship position.
- Teddy Furon is scientific advisor for the startup Lamark.

10.1.7. Research Administration

- Guillaume Gravier is deputy director of the Institut de Rercherche en Informatique et Systèmes Aléatoires (IRISA, UMR 6074).
- Guillaume Gravier is a member of the Board of the technology cluster Images & Réseaux.
- Pascale Sébillot was a member of the Conseil National des Universités 27th section (computer science) until Nov 2019.
- Pascale Sébillot is the director of the Computer Science Laboratory, INSA Rennes.
- Pascale Sébillot is the deputy director of the Scientific Advisory Committee of IRISA UMR 6074.
- Pascale Sébillot is a member of the theses advisory committee of the MathSTIC doctoral school.
- Pascale Sébillot is a member of the board of the MathSTIC doctoral school.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: Laurent Amsaleg & Teddy Furon, Indexation multimédia, 10h, L3-cours invité, ENS Rennes, France

Licence: Laurent Amsaleg, Bases de données avancées, 2h, L3-option génie mathématique, INSA Rennes, France

Licence: Guillaume Gravier, Databases, 30h, L2, INSA Rennes, France

Licence: Guillaume Gravier, Probability and statistics, 16h, L3, INSA Rennes, France

Licence: Guillaume Gravier, Natural Language Processing, 12h, L3 & M1, INSA Rennes, France

Licence: Pascale Sébillot, Natural Language Processing, 10h, L3, INSA Rennes, France

Master: Laurent Amsaleg, Bases de données avancées, 25h, M2, INSA Rennes, France

Master: Guillaume Gravier, Data analysis and probabilistic modeling, 30h, M2, University Rennes 1, France

Master: Pascale Sébillot, Natural Language Processing, 6h, M1, INSA Rennes, France

Master: Yannis Avrithis, Deep learning for vision, 20h, M2 SIF, France

Master: Yannis Avrithis, Computer vision, 30h, National and Kapodistrian University of Athens, Greece

Master : Simon Malinowski, Predictive analytics, 48h, M1 MIAGE, Univ. Rennes 1

Master : Simon Malinowski, Machine Learning, 32h, M2 MIAGE, Univ. Rennes 1

Master : Simon Malinowski, Symbolic data mining, 12h, M2 MIAGE, Univ. Rennes 1

Engineering school: Vincent Claveau, Machine Learning, 18h, 3rd year, INSA Rennes, France

Master: Vincent Claveau, Information Retrieval, 10h, M2 MIAGE, Univ. Rennes, France

Master: Ewa Kijak, Image processing, 55h, M1, ESIR, France

Master: Ewa Kijak, Supervised machine learning, 21h, M2R, University Rennes 1, France

Master: Ewa Kijak, Supervised machine learning, 15h, M2, University Rennes 1, France

Master: Ewa Kijak, Image classification, 45h, M1, ESIR, France

Master: Ewa Kijak, Image indexing, 17h, M2, University Rennes 1, France

Master: Ewa Kijak, Computer vision, 22h, M2, ESIR, France

Master: Teddy Furon, Rare Events, 20h, M2, Insa Rennes, France

10.2.2. Supervision

PhD in progress: Mathieu Laroze, Active learning on adaptive representations for object detection in high-resolution imaging, June 2016, Romain Dambreville, Chloe Friguet, Ewa Kijak & Sébastien Lefevre (with OBELIX, IRISA team)

PhD in progress: Hanwei Zhang, Deep Learning in Adversarial Contexts, October 2017, Laurent Amsaleg, Yannis Avrithis, Teddy Furon & Ewa Kijak

PhD in progress: Marzieh Gheisari Khorasgani, Secure identification in the Internet of Things, January 2018, Laurent Amsaleg & Teddy Furon

PhD in progress: Antoine Perquin, Universal speech synthesis through embeddings of massive heterogeneous data, October 2017, Laurent Amsaleg, Gwénolé Lecorvé & Damien Lolive (with Expression, IRISA team)

PhD in progress: Benoit Bonnet, Adversarial images, November 2019, Teddy Furon & Patrick Bas

PhD in progress: Tong Xue, Visualization and collaborative analysis of document collections and extracted knowledge for data journalism, October 2018, Laurent Amsaleg & Anastasia Bezerianos

PhD in progress: Mikail Demirdelen, User-adapted multi-document multimedia synthesis, started October 2016, Guillaume Gravier and Pascale Sébillot

PhD in progress: Cheikh Brahim El Vaigh, Incremental content to data linking leveraging ontological knowledge in data journalism, started October 2017, Guillaume Gravier, Pascale Sébillot and François Goasdoué (with CEDAR, Inria team)

PhD in progress: Cyrielle Mallart, Incremental dynamic construction of knowledge graphs from text mining, started December 2018, Guillaume Gravier, Michel Le Nouy (Ouest-France), Pascale Sébillot

PhD in progress: François Torregrossa, Heterogeneous data embedding for professional search, started November 2018, Robin Allessiardo (So Local), Vincent Claveau, Guillaume Gravier

PhD in progress: Oriane Siméoni, Invariance and supervision in visual learning, started October 2016, Yannis Avrithis & Guillaume Gravier

PhD in progress: Yann Lifchitz, Few shot learning for object recognition in aerial images. Started March 2018, Yannis Avrithis & Sylvaine Picard (Safran Tech).

PhD in progress: Zhaohui Yang, learning visual models with minimal human supervision, started January 2018, Miaojing Shi & Yannis Avrithis & Chao Xu (Peking University, Beijing)

PhD in progress: Raquel Almeida, Learning hierarchichal models for multimedia data, started January 2019, Ewa Kijak & Simon Malinowski & Laurent Amsaleg

PhD defended: Cédric Maigrot, Détection de fausses informations dans les réseaux sociaux, defended April 2019, Laurent Amsaleg, Vincent Claveau & Ewa Kijak. See [1].

PhD defended: Ricardo Carlini-Sperandio, Unsupervised motif mining in multimedia time series, defended December 2019, Laurent Amsaleg.

10.2.3. Juries

- Guillaume Gravier was involved in the following juries:
    - PhD Eloi Zabrocki, Paris-Sorbonne Université, Nov. 2019, reviewer
    - HDR Benoît Favre, Aix-Marseille Université, Nov. 2019, reviewer
- Pascale Sébillot was involved in the following juries:
    - HDR Natalia Grabar, Université Paris-Saclay, May 2019, member

- Vincent Claveau was reviewer for the mid-term PhD auditions of: Ygor Gallina (LS2N), Tsanta Randriatsitohaina (LIMSI), Oussama Ahmia (IRISA), Hyun Jung Kang (MoDyCo)
- Vincent Claveau was a member of the PhD jury of C. Artaud (Univ. La Rochelle)
- Teddy Furon was reviewer for the mid-term PhD auditions of: Alexandre Sablayrolles (Inria Grenoble - Facebook FAIR), Solène Bernard (CRIStAL Lille)
- Teddy Furon was a member of the PhD jury of Clément Feutry (CentraleSupelec Paris).

10.3. Popularization

10.3.1. Articles and contents

- Vincent Claveau was interviewed for his activities about fake news detection in: hors-série 199 de Sciences et avenir Oct/Nov 2019; Sciences Ouest n375; Télérama; Science et vie; Science et avenir; 01net N 894.
- Vincent Claveau was interviewed for his activities about text mining the Grand Débat contributions: AEG infos; Ouest France.
- Ewa Kijak and Vincent Claveau were interviewed for the TV show Télématin Science, nov 2019.
- Ewa Kijak was interviewed about fake news and deepfake detection in: AFP, Le Télégramme, Data Analytics Post, Sciences Ouest n375, Le Temps, FranceTV Info (TV show "Vrai ou Fake"), tv5 monde
- Ewa Kijak was invited on the radio show "La méthode scientifique", France culture, on "Deepfake : faut-il le voir pour le croire ?"
- Teddy Furon was interviewed by Data Analytics Post about the connection of deepfake and watermarking.

10.3.2. Education

LINKMEDIA has been actively involved into the "L codent, L créent" initiative with Cyrielle Mallart and Oriane Siméoni.

10.3.3. Interventions

- Guillaume Gravier gave an invited talk entitled "Strengths, weaknesses and limits of AI illustrated" at the West Data Festival (professional forum, 100 attendees)
- Ewa Kijak gave an invited talk entitled "Fighting Fake news and deep fakes" at the CEPIC congress (Coordination of European Picture Agencies Stock, Press and Heritage)

LINKS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Chair of Conference Program Committees

J. Niehren was co-chair of the programm committee of WPTE 2019.

10.1.1.2. Member of the Conference Program Committees

- J. Niehren: member of the Program Committee of LATA 2019
- S. Tison: member of the program committee of FSCD (International Conference on Formal Structure for Computation and Deduction) 2019.
- S. Staworko: member of the program committee of EDBT 2020: International Conference on Extending Database Technology, Copenhagen, Denmark, March 30–April 2, 2020; Demonstration Track
- F. Capelli: member of the program committee of IJCAI 2019

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

J. Niehren is editor of Fundamenta Informaticae

S. Salvati is managing editor of JoLLI (Journal for Logic, Language and Information)

S. Tison is in the editorial committee of RAIRO-ITA (Theoretical Informatics and Applications)

10.1.3. Invited Talks

- S. Staworko has been invited in GT Automata, Logic, Games and Algebra (ALGA) to give the talk *Shape Expressions Schemas for RDF: Semantics, Complexity, and Inference* (Oct 2019, Paris)
- I. Boneva and J. Dusart have been invited to Ghent University, Belgium Wikidata and Wikibase Workshop: developing a Wikibase instance (3 - 5 July 2019) as expert on ShapeDesigner
- F. Capelli has been invited in the seminar of LIMD (Université de Savoie) (13/06/2019)
- F. Capelli has been invited in the Dagstuhl Seminar "Deduction Beyond Satisfiability" (10/09/2019)
- F. Capelli has been invited in the seminar of LACL (Université Paris-Est Creteil) (18/11/2019)
- F. Capelli has been invited in "Journée du GT ALGA" (Paris, 11/10/201)9

10.1.4. Scientific Expertise

- S. Tison: member of the coordinating committee of I-Site Université Lille Nord Europe, about innovation and relationship with social economical world
- S. Tison: head of CITC-Eurarfid until June 2019
- J. Niehren: member of the board of the comittee of project-teams of Inria Lille

10.1.5. Research Administration

- S. Salvati: elected alternate member of Inria Evaluation Commission (2019-2023)
- F. Capelli: co-organizer of *Groupe de Travail* of CNRS IMIA (Informatique Mathématique Intelligence Artificielle)
- F. Capelli: organiser of a AI DAY for the GDR IM

- F. Capelli: organiser of an international workshop on knowledge compilation (project SACRe Kocoon - http://kocoon.gforge.inria.fr/)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

I. Boneva teaches computer science in DUT Informatique of Université de Lille

F. Capelli teaches computer science in UFR LEA of Université de Lille for around 200h per year (Licence and Master). He is also responsible of remediation of Licence 1 in its UFR.

A. Lemay teaches computer science in UFR LEA of Université de Lille for around 200h per year (Licence and Master). He is also responsible for computer science and numeric correspondent for its UFR.

J. Niehren gives two lessons for the 2nd year students of the Master MOCAD (Université de Lille): one on databases (20.5h) and one on information extraction (21h).

C. Paperman teaches computer science for a total of around 200h per year. He gives lessons in UFR MISASH (Université de Lille), in Licence and Master. He also gives a database lesson of 25h in Master MOCAD (Université de Lille).

S. Salvati teaches computer science for a total of around 230h per year in computer science departement of Université de Lille. That includes Introduction to Computer Science (L1, 50h), Logic (L3, 50h), Algorithmic and operational research (L3, 36h), Functional Programming (L3, 35h), Research Option (L3, 10h), Semantic Web (M2, 30h), Advanced Databases (M1, 20h). He is *directeur d'étude* of Master MIAGE FA. He is a member of conseil de departement in Computer Science department of Université de Lille and of the ad-hoc commission of Doctoral School that studies PhD applications in computer science.

S. Staworko teaches computer science for a total of around 200h in UFR MIME (Université de Lille). He is co-head of the master web-analyst at Université de Lille.

S. Tison teaches computer science for a total of around 120h at Université de Lille. That includes a course on Advanced algorithms and complexity (54h, M1) and Business Intelligence (36h, M1).

S. Tison is member of the selection Board for "Agrégation" in Mathematics, more specifically in charge of the option "Computer Science".

10.2.2. Supervision

PhD: L. Gallois, Recursive Queries, defended on December 19, 2019, supervised by P. Bourhis (Team SPIRALS) and S. Tison

PhD in progress: N. Crosetti, Privacy Risks of Aggregates in Data Centric-Workflows, supervised by F. Capelli, J. Niehren, J. Ramon (Team MAGNET) and S. Tison

PhD in progress: P. Gallot, On safety of data transformations, since October 2017, supervised by A. Lemay and S. Salvati

PhD in progress: J.M. Lozano, On data integration for mixed database formats, supervised by I. Boneva and S. Staworko

PhD in progress: M. Sakho, Hyperstreaming Query answering on graphs, since 2016, supervised by J. Niehren and I. Boneva

10.2.3. Juries

10.2.3.1. PhDs committees

- J. Niehren was a reviewer of the PhD thesis of *Antony Lick* at ENS Cachan 2019
- S. Tison was member of the jury for *Xinzhe Wu*, Université de Lille, March 2019

- S. Tison was member of the jury for *Stathis Delivorias*, Université de Montpellier, September 2019 (reviewer)
- S. Tison was member of the jury for *Nicolas Bloyet*, Université Bretagne Sud, December 2019 (reviewer)

10.2.3.2. HDR committees

- S. Tison was member of the jury for *Arnaud Carayol*, December 2019, Université Paris Est-Marne la Vallée (reviewer)
- S. Salvati was member of the jury for *Colin Riba*, ENS Lyon, December 2019

10.3. Popularization

10.3.1. Education

RIC Days   S. Salvati organizes the *Recherche Innovation et Créativité days*. It presents research professions to student (primarily Master students)

10.3.2. Interventions

Introduction to programming   I. Boneva has supervised second year students from DUT while they conducted activities on introduction to programming to 9-10 years old students in Villeneuve d'Ascq

TFJM^2 In 2019, L. Gallois participated in the organization of this event of the *Tournoi Français des jeunes mathématiciennes et mathématiciens*, a national contest of mathematics for high-school students

10.3.3. Internal action

- Inria by Lille: J. Niehren contributed an article in the december issue of "Inria by Lille" titled "Interroger les bases de données d'une manière plus intelligente"

LOKI Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organization

10.1.1.1. General Chair, Scientific Chair

- HAID 2019: Thomas Pietrzak, Marcelo Wanderley

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- IHM (AFIHM): Thomas Pietrzak

10.1.2.2. Member of the Conference Program Committees

- CHI (ACM): Géry Casiez, Stéphane Huot, Thomas Pietrzak
- IHM (AFIHM): Mathieu Nancel, Thibault Raffaillac (Work in Progress)
- WebMedia (SBC): Raiza Hanada
- ISS (ACM): Sylvain Malacria

10.1.2.3. Reviewer

- CHI (ACM): Géry Casiez, Stéphane Huot, Sylvain Malacria, Mathieu Nancel, Thomas Pietrzak
- UIST (ACM): Géry Casiez, Sylvain Malacria, Mathieu Nancel, Thomas Pietrzak
- IDC (ACM): Géry Casiez
- DIS (ACM): Stéphane Huot, Mathieu Nancel
- GI: Géry Casiez, Mathieu Nancel
- ISS (ACM): Mathieu Nancel, Thomas Pietrzak
- SUI (ACM): Mathieu Nancel

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

- Transactions on Computer-Human Interaction (ACM): Géry Casiez, Thomas Pietrzak, Mathieu Nancel
- Intl. Journal of Human-Computer Studies (Elsevier): Sylvain Malacria
- User Modeling and User-Adapted Interaction (Springer): Sylvain Malacria

10.1.4. Invited Talks

- *Who [was|is|will be] in Control?: Some Control-Related Challenges in Interacting with Complex Systems*, 2nd JST-ANR Joint Symposium: Symbiotic Interaction, Tokyo, Japan: Stéphane Huot

10.1.5. Leadership within the Scientific Community

Association Francophone d'Interaction Homme-Machine (AFIHM):

- Géry Casiez: member of the scientific council since March 2019
- Stéphane Huot: member of the scientific council until March 2019

10.1.6. Scientific Expertise

- Agence Nationale de la Recherche: Stéphane Huot (vice-chair for the CES33 "Interaction and Robotics" committee)
- CN35 AFNOR normalization committee about normalizing the French keyboard: Mathieu Nancel (publication of the NF Z71-300 standard)

10.1.7. Research Administration

10.1.7.1. For Inria

- International relations working group (COST-GTRI): Stéphane Huot (member)

10.1.7.2. For Inria Lille – Nord Europe

- "Bureau du comité des équipes projets" (BCEP): Stéphane Huot (member)
- "Commission des Emplois de recherche du centre Inria Lille – Nord Europe" (CER): Sylvain Malacria (member)
- "Comité opérationnel d'évaluation des risques légaux et éthiques" (COERLE, the Inria Ethics board): Stéphane Huot (local correspondent)
- "Commission de développement technologique" (CDT): Mathieu Nancel (member)

10.1.7.3. For the CRIStAL lab of Université de Lille & CNRS

- Direction board: Géry Casiez
- Computer Science PhD recruiting committee: Géry Casiez (member)

10.1.7.4. For the Université de Lille

- Coordinator for internships at IUT A: Géry Casiez
- Computer Science Department council: Thomas Pietrzak

10.1.8. Hiring committees

- Université de Valenciennes hiring committee for a Computer Science Professor position: Géry Casiez (member)
- ENAC hiring committee for a Computer Science faculty position: Stéphane Huot (member)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

DUT Informatique: Géry Casiez (38h), Stéphane Huot (28h), Axel Antoine (28h), Thibault Raffaillac (56h) *IHM*, 1st year, IUT A de Lille - Université de Lille

DUT Informatique: Axel Antoine (32h), CDIN-CALC, 1st year, IUT A de Lille - Université de Lille

DUT Informatique: Marc Baloup, Algorithme et Programmation, 21.5h, 1st year, IUT A de Lille - Université de Lille

DUT Informatique: Marc Baloup, CDIN Web, 11h, 1st year, IUT A de Lille - Université de Lille

DUT Informatique: Thibault Raffaillac, Codage et Systèmes d'exploitation, 64h, 1st year, IUT A de Lille - Université de Lille

DUT Informatique: Thibault Raffaillac, Algorithmique avancée, 64h, 1st year, IUT A de Lille - Université de Lille

Licence Informatique: Thomas Pietrzak, *Logique*, 36h, L3, Université de Lille

Licence Informatique: Thomas Pietrzak, *Image et Interaction 2D*, 10.5h, L3, Université de Lille

Cursus ingénieur: Sylvain Malacria (10h), *3DETech*, IMT Lille-Douai

Master Informatique: Thomas Pietrzak (18h), *NIHM*, M2, Université de Lille

Master Informatique: Sylvain Malacria (12h), *NIHM*, M2, Université de Lille

Master Informatique: Thomas Pietrzak (34.5h), Sylvain Malacria (34.5), *IHM*, M1, Université de Lille

Master Informatique: Mathieu Nancel, *Evaluation*, 8h, M2, Université de Lille

10.2.2. Supervision

PhD: Thibault Raffaillac, *Languages and System Infrastructure for Interaction*, defended in Dec. 2019, advised by Stéphane Huot

PhD: Hakim Si Mohammed, *Improving Interaction Based on a Brain-Computer Interface*, defended in Dec. 2019, advised by Anatole Lecuyer, Ferran Argelaguet, Géry Casiez & Nicolas Roussel (in Rennes)

PhD: Jeronimo Barbosa, *Design and Evaluation of Digital Musical Instruments*, McGill University, defended in May 2019, advised by Marcelo Wanderley & Stéphane Huot (in Montréal)

PhD in progress: Grégoire Richard, *Touching avatars : le rôle du retour haptique dans les interactions avec les avatars en réalité virtuelle*, started Oct. 2019, advised by Géry Casiez & Thomas Pietrzak

PhD in progress: Philippe Schmid, *Command History as a Full-fledged Interactive Object*, started Oct. 2019, advised by Mathieu Nancel & Stéphane Huot

PhD: Damien Masson, *Supporting Interactivity with Static Content*, University of Waterloo, started in January 2019, advised by Edward Lank, Géry Casiez& Sylvain Malacria (in Waterloo)

PhD in progress: Marc Baloup, *Interaction with avatars in immersive virtual environments*, started Oct. 2018, advised by Géry Casiez & Thomas Pietrzak

PhD in progress: Axel Antoine, *Helping Users with Interactive Strategies*, started Oct. 2017, advised by Géry Casiez & Sylvain Malacria

PhD in progress: Nicole Ke Chen Pong, *Understanding and Improving Users Interactive Vocabulary*, started Oct. 2016, advised by Nicolas Roussel, Sylvain Malacria & Stéphane Huot

10.2.3. Juries

Hugo Romat (PhD, Université Paris-Saclay): Stéphane Huot, president

Emmanouil Giannisakis (PhD, Université Paris-Saclay): Géry Casiez, reviewer

Marie-Éléonore Kessaci (HDR, Université de Lille): Géry Casiez, president

10.2.4. Mid-term evaluation committees

Antonin Durey (PhD, Université de Lille): Géry Casiez

Théo Voillemin (PhD, Université de Lille): Géry Casiez

Vikas Mishra (PhD, Université de Lille): Géry Casiez

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

AIRLab selection committee for the funding of art and science projects, Stéphane Huot (representative for Inria Lille – Nord Europe)

10.3.2. Articles and contents

The Mother Of All Demos, l'autre révolution de 1968, interview for Carré, Petit, Utile : Le programme radio des gens du numérique on Radio <FMR>, Stéphane Huot

web series *Dopamine* on Arte.tv, scientific expertise, Stéphane Huot

10.3.3. Interventions

Intervention during the official launch event of the new NF Z71-300 French keyboard standard at the Assemblée Nationale: Mathieu Nancel

MAGNET Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

- MARC TOMMASI and AURÉLIEN BELLET co-organized the APVP conference on privacy [0].

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

- MARC TOMMASI served as PC member for ICML'19, CAP'19, IJCAI'19 (Senior PC chair), ECML'19 (Area Chair), NeurIPS'19 (Area Chair), APVP'19.
- JAN RAMON served as PC member for AAAI'19, AISTATS'19 & '20, APVP'19, Bigdata'19, CIKM'19, DS'19, ECML/PKDD'19, GEM@ECML'19, IEEE-ICDM'19, ICML'19, IJCAI'19, ILP'19, LEG@ECML'19, LOD'19, MLG'19, NeurIPS'19, SDM'19 & '20.
- PASCAL DENIS served as PC member for ACL'19 and EMNLP'19.
- AURÉLIEN BELLET served as Area Chair for ICML'19, and PC member for AISTATS'20, NeurIPS'19, PPML workshop at CSS'19, PPML workshop at NeurIPS'19, FL workshop at NeurIPS'19, PPAI workshop at AAAI '20, CAP'19.
- MIKAELA KELLER served as PC member for ICML'19, CAP'19 and ECML'19.
- RÉMI GILLERON served as PC member for AISTATS'19 & '20, ICLR'19 & '20, ECML/PKDD'19, NeurIPS'19 and CAP'19.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- JAN RAMON was member of the editorial board of Data mining and knowledge discovery (DMKD), and of the editorial board of Machine learning journal (MLJ)

9.1.3.2. Reviewer - Reviewing Activities

- MARC TOMMASI was reviewer for the ECML-PKDD Journal Track.
- AURÉLIEN BELLET was reviewer for SIAM Journal on Mathematics of Data Science.

9.1.4. Invited Talks

- AURÉLIEN BELLET gave invited talks at several workshops and research school: "Graph signals: learning and optimization perspectives" [0], "The power of graphs in machine learning and sequential decision making" [0], "CIFAR-UKRI-CNRS Workshop on AI & Society: From principles to practice" [0], "Workshop on Federated Learning and Analytics" [0], "International Workshop on Machine Learning & Artificial Intelligence" [0], "Kick-off seminar of the HumAIn Alliance in Artificial Intelligence" [0], "Research School on Uncertainty in Scientific Computing" [0], "GDR RSD and ASF Winter School on Distributed Systems and Networks" [0].
- AURÉLIEN BELLET was invited to talk at the seminars of Thales Research & Technology, Miles team at Paris Dauphine.
- MIKAELA KELLER gave an invited talk on "Algorithmiques de graphes pour l'étude de réseaux sociaux" at "École d'été internationale : Formation de maîtrise et de doctorat en méthodes et outils numériques : l'analyse de réseaux en histoire" [0].

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[0] https://project.inria.fr/apvp2019/
[0] https://graph-sig-2019.sciencesconf.org/
[0] https://graphpower.inria.fr/
[0] https://www.turing.ac.uk/events/cifar-ukri-cnrs-ai-society-principles-practice
[0] https://sites.google.com/view/federated-learning-2019/
[0] https://workshopmlai.wp.imt.fr/
[0] https://www.alliance-humain.fr/
[0] http://www.gdr-mascotnum.fr/etics.html
[0] https://sites.google.com/site/rsdwinterschool/

9.1.5. Scientific Expertise

- AURÉLIEN BELLET was a member of the jury for the Gilles-Kahn PhD award of the French Society of Computer Science (SIF), sponsored by the French Academy of Sciences [0].

- JAN RAMON was a member of the jury for the European Young Researchers Award (EYRA) of Euroscience.

- PASCAL DENIS served as CoCNRS representative for the evaluation panel of Haut Conseil de l'évaluation de la recherche et de l'enseignement supérieur, HCERES [0].

- PASCAL DENIS acted as external expert for Innovis [0], Brussels Institute for Research and Innovation (Belgium).

9.1.6. Research Administration

- MIKAELA KELLER is member of the Conseil du laboratoire CRIStAL.

- MARC TOMMASI is co-head of the DatInG group (4 teams, 80 persons) and member of the Conseil Scientifique du laboratoire CRIStAL.

- PASCAL DENIS served as an elected member of the Comité National du CNRS, section 34 (Sciences du Langage).

- PASCAL DENIS served as a member of the CNRS Pre-GDR NLP Group.

- JAN RAMON was a member of the Inria-Lille committee emploi-recherche (CER).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence SCE: FABIO VITALE, Apprentissage et émergence des comportements, 30h, L2, Université de Lille.

Licence MIASHS: FABIO VITALE, Algorithmique et programmation, 42h, L3, Université de Lille.

Licence SoQ: FABIO VITALE, Bases de données et SQL, 16h, L1, Université de Lille.

Licence MIASHS: FABIO VITALE, Introduction aux bases de données, 18h, L3, Université de Lille.

Licence SHS: MARC TOMMASI, Data Science, 24h, L2, Université de Lille.

Licence MIASHS: MARC TOMMASI, Codage et représentation de l'information, 48h, L1, Université de Lille.

Licence: MARC TOMMASI, Traitement de textes et tableur, 28h Université de Lille.

Licence: MARC TOMMASI, Humanités numériques - Découvrir et faire découvrir la programmation, 20h, Université de Lille

Master SHS: MARC TOMMASI, IT Tools for professional translators, 24h, M2 Université de Lille.

Licence SHS: MARC TOMMASI, Python Programming, 48h, L2 Université de Lille.

Licence MIASHS: MIKAELA KELLER, Python II, 40h, L2, Université de Lille.

Licence MIASHS: MIKAELA KELLER, Traitement de données, 42h, L2, Université de Lille.

Licence SoQ (SHS): MIKAELA KELLER, Algorithmique de graphes, 24h, L3, Université de Lille.

Master MIASHS: MIKAELA KELLER, Algorithmes fondamentaux de la fouille de données, 60h, M1, Université de Lille.

Master Computer Science: MIKAELA KELLER, Machine Learning, 24h, M1, Université de Lille.

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[0]http://www.grhs.uqam.ca/?portfolio=ecole-dete-internationale-formation-de-maitrise-et-de-doctorat-methodes-et-outils-numeriques-lanalyse-de-reseaux-en-histoire

[0]https://www.societe-informatique-de-france.fr/recherche/prix-de-these-gilles-kahn/

[0]https://www.hceres.fr/en

[0]https://innoviris.brussels/

Master Data Science: FABIO VITALE, Algorithms and their complexity, 30h, M1, Ecole Centrale de Lille.

Master Data Analysis & Decision Making: AURÉLIEN BELLET, Machine Learning, 12h, Ecole Centrale de Lille.

Master / Master Spécialisé Big Data: AURÉLIEN BELLET, Advanced Machine Learning, 15h, Télécom ParisTech.

Formation continue (Certificat d'Études Spécialisées Data Scientist): AURÉLIEN BELLET, Supervised Learning and Support Vector Machines, 14h, Télécom ParisTech.

Master Informatique: PASCAL DENIS, Foundations of Machine Learning, 46h, M1, Université de Lille.

9.2.2. Supervision

Postdoc: MOHAMED MAOUCHE, supervised by AURÉLIEN BELLET, MARC TOMMASI, Privacy attacks on representation learning for speech processing, since November 2019.

PhD: MATHIEU DEHOUCK, Multi-lingual Dependency Parsing: Word Representation and Joint Training for Syntactic Analysis, 2015-2019, PASCAL DENIS and MARC TOMMASI.

PhD in progress: ONKAR PANDIT, Graph-based Semi-supervised Linguistic Structure Prediction, since Dec. 2017, PASCAL DENIS, MARC TOMMASI and LIVA RALAIVOLA (University of Marseille).

PhD in progress: MARIANA VARGAS VIEYRA, Adaptive Graph Learning with Applications to Natural Language Processing, since Jan. 2018. PASCAL DENIS and AURÉLIEN BELLET and MARC TOMMASI.

PhD in progress: BRIJ SRIVASTAVA, Representation Learning for Privacy-Preserving Speech Recognition, since Oct 2018 AURÉLIEN BELLET and MARC TOMMASI and EMMANUEL VINCENT.

PhD in progress: MAHSA ASADI, On Decentralized Machine Learning, since Oct 2018. AURÉLIEN BELLET and MARC TOMMASI.

PhD in progress: NICOLAS CROSETTI, Privacy Risks of Aggregates in Data Centric-Workflows, since Oct 2018. FLORENT CAPELLI and SOPHIE TISON and JOACHIM NIEHREN and JAN RAMON.

PhD in progress: ROBIN VOGEL, Learning to rank by similarity and performance optimization in biometric identification, since 2017 (CIFRE thesis with IDEMIA and Télécom ParisTech). AURÉLIEN BELLET, STÉPHAN CLÉMENÇON and ANNE SABOURIN.

PhD in progress: MOITREE BASU, Integrated privacy-preserving AI, since 2019. JAN RAMON.

PhD in progress: CÉSAR SABATER, Privacy Preserving Machine Learning, since 2019. JAN RAMON.

Master internship in progress: PAUL MANGOLD, supervised by AURÉLIEN BELLET and MARC TOMMASI, since October 2019.

9.2.3. Juries

MARC TOMMASI was member of the PhD jury of Corentin Hardy (rapporteur), Guillaume Metzler (rapporteur), Ronan Fruit (President)

MARC TOMMASI was member of the Habilitation jury of Rémi Eyraud (rapporteur).

MARC TOMMASI was member of the recruitment committee of Assistant Professors in Computer Science at École centrale de Lille.

AURÉLIEN BELLET was member of the PhD jury of Alexandre Garcia (Télécom Paris).

MIKAELA KELLER was member of the PhD jury of Guillaume Lample (LIP6)

MIKAELA KELLER was member of the recruitment committee of Assistant Professors in Computer Science at Sorbonne Université (LIP6).

RÉMI GILLERON was head of the PhD jury of Lily Galois (Université de Lille)

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

AURÉLIEN BELLET is member of the Operational Committee for the assesment of Legal and Ethical risks (COERLE).

PASCAL DENIS is administrator of Inria membership to Linguistic Data Consortium (LDC).

9.3.2. Articles and contents

AURÉLIEN BELLET and MARC TOMMASI provided expertise for the Dopamine TV program on Arte about new technologies [0].

AURÉLIEN BELLET co-authored an article in the French daily newspaper Libération on AI and transparency [0].

RÉMI GILLERON authored a book (in French) introducing Machine Learning [0].

RÉMI GILLERON gave a talk in order to popularize Artificial Intelligence.

9.3.3. Interventions

In educational institutions: MARC TOMMASI was facilitator for the event *Jouer à débattre*, about machine learning in high school (Tourcoing).

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[0] https://www.arte.tv/fr/videos/RC-017841/dopamine/
[0] https://www.liberation.fr/debats/2019/04/07/grand-debat-et-ia-quelle-transparence-pour-les-donnees_1719944
[0] https://www.editions-ellipses.fr/accueil/4741-apprentissage-machine-cle-de-l-intelligence-artificielle-une-introduction-pour-non-specialistes-9782340028807.html

<p style="text-align:center">**MAGRIT Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Reviewer

- Marie-Odile Berger was reviewer for ISMAR (International Symposium for Mixed and Augmented Reality), IPCAI (International Conference on Information Processing in Computer-Assisted Interventions), IROS (International Conference on Intelligent Robots and Systems), ICRA (International conference on Robotics and Automation), RSS (Robotics: Science and Systems), AE-CAI (Workshop on Augmented Environments for Computer Assisted Interventions), ORASIS (French conference on computer vision)

- Erwan Kerrien was reviewer for MICCAI 2019, IPCAI 2020, MIAR/AE-CAI/CARE 2019 workshop and Orasis 2019

- Gilles Simon was reviewer for IEEE VR 2019 and IEEE ISMAR 2019

- Pierre-Frederic Villard was a reviewer for MICCAI 2019, the Eurographics Workshop on Visual Computing for Biology and Medicine 2019 and the International Conference on Computer Graphics, Visualization, Computer Vision And Image Processing 2019

9.1.2. Journal

- Marie-Odile Berger was a reviewer for the International Journal of Computer Assisted Radiology and Surgery.

- Erwan Kerrien was a reviewer for IEEE Transactions on Medical Imaging

- Frédéric Sur was a reviewer for IEEE Transactions on Medical Imaging, Experimental Mechanics, Signal Processing: Image Communication, Digital Signal Processing, IEEE Transactions on Image Processing, SIAM Journal on Imaging Science

- Gilles Simon was a reviewer for IEEE Transactions on Visualization & Computer Graphics

- Pierre-Frédéric Villard was a reviewer for the International Journal of Computer Assisted Radiology and Surgery.

9.1.3. Invited Talks

- Fabien Pierre gave an invited talk entitled "Coupling Variational Method with CNN for Image Colorization" at the workshop "Variational methods and optimization in imaging" (Paris), at Jean Kuntzmann's laboratory (Grenoble), at ENSEEIHT(Toulouse) and at the one day workshop géométrie de la couleur, organized by GDR ISIS.

- Gilles Simon gave an invited talk at the Nanjing Institute of Advanced AI in China entitled "Camera localization for AR in large indoor environments".

- Pierre-Frédéric Villard gave a seminar at the department of information technology of Uppsala University. Title: "Segmentation of Mitral Valve Chordae".

- Daryna Panicheva gave a talk at the Harvard Biorobotics Lab. Title: "Physically-coherent Extraction of Mitral Valve Chordae".

- Pierre-Frederic Villard gave a talk at the Harvard Biorobotics Lab. Title: "An Overview of Deformable Models".

9.1.4. Scientific Expertise

- Erwan Kerrien was an expert to evaluate NExT Isite (https://next-isite.fr/) calls for projects.

9.1.5. Research Administration

- Marie-Odile Berger is the president of the Association française pour la reconnaissance et l'interprétation des formes (AFRIF).
- Marie-Odile Berger was a member of the Inria evaluation committee.
- Frédéric Sur was a member of the recruitment committee for a Professor at IUT Charlemagne.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

The academic members of the MAGRIT team actively teach at Université de Lorraine with an annual number of around 200 teaching hours in computer sciences each, some of them being accomplished in the field of image processing. Inria researchers have punctual teaching activities in computer vision and shape recognition mainly in the computer science Master of Nancy and in several Engineering Schools near Nancy (ENSMN Nancy, SUPELEC Metz, ENSG). Our goal is to attract Master students with good skills in applied mathematics towards the field of computer vision.

The complete list of courses given by staff members is detailed below:

- M.-O. Berger
    - Master : Shape recognition, 24 h, Université de Lorraine.
    - Master : Introduction to image processing, 12 h, École des Mines de Nancy .
    - Master : Image processing for Geosciences, ENSG, 12h.
- E. Kerrien
    - Master : Introduction to image processing, 15 h, École des Mines de Nancy.
    - Licence: Basics of computer science, 71h, IUT Saint-Dié-des-Vosges.
    - Professional training: Computer science unplugged for science teachers, 6h, INSPE de Lorraine.
- Fabien Pierre
    - Licence: Introduction au traitement d'image, 30h, IUT Saint-Dié des Vosges.
    - Master: Introduction à l'apprentissage automatique, 16 h, Université de Lorraine.
    - Licence: Algorithmique et programmation, 87h, IUT Saint-Dié des Vosges
    - Licence: Culture scientifique et traitement de l'information, 69h, IUT Saint-Dié des Vosges
    - Licence: Programmation objet et évènementielle, 35h, IUT Saint-Dié des Vosges
    - Licence: Initiation à l'intelligence artificiell, 8h, IUT Saint-Dié des Vosges
- G. Simon
    - Master: Augmented reality, 24 h, Télécom-Nancy.
    - Master : Augmented reality, 3 h, SUPELEC Metz.
    - Master: Augmented reality, 24h, M2 Informatique FST
    - Master: Visual data modeling, 12h, M1 Informatique FST
    - Image processing and computer vision, 12h, M1 informatique, FST
    - Licence pro : 3D modeling and integration, 40h FST - CESS d'Epinal
- F. Sur
    - Master: Introduction to machine learning, 60 h, Mines Nancy
    - Master: Time series analysis, 30h, Mines Nancy

- Licence: Javascript programming, 150h, IUT Charlemagne
- Introduction to signal processing, 20h, IUT Charlemagne
- P.-F. Villard
  - Licence: Computer Graphics with webGL, 30h, IUT Saint-Dié des Vosges.
  - Licence: Game design with Unity3D, 15h, IUT Saint-Dié des Vosges.
  - Licence: Virtual and Augmented Reality in Industrial Maintenance, 2h, Faculty of Science and Technology, Université de Lorraine
  - Master : Augmented and Virtual Reality, 16h, M2 Cognitive Sciences and Applications, Institut des Sciences du Digital, Université de Lorraine
  - Virtual and Augmented Reality within Unity, 15h, Glyndwr University, Wrexham, UK (ERASMUS+ program)
  - Licence: Web programming, 20h, IUT Saint-Dié des Vosges.
  - Licence: Graphical user interface programming, 30h, IUT Saint-Dié des Vosges.
  - Licence: Object-oriented programming, 20h, IUT Saint-Dié des Vosges.
  - Licence: UML modeling,16h, IUT Saint-Dié des Vosges.
  - Licence: Security and life privacy with internet, 2h, IUT Saint-Dié des Vosges.
  - Licence: Parallel programming, 18h, IUT Saint-Dié des Vosges.
- Brigitte Wrobel-Dautcourt
  - Master: modélisation objet et conception des systèmes d'information, 30h, Télécom
  - Master: projet de conception et développement java, 27h, Télécom 2A
  - Licence: bases de la programmation objet, 44h, Faculté des Sciences et Techniques, Université de Lorraine
  - Licence: interfaces graphiques,22h, Faculté des Sciences et Techniques, Université de Lorraine
  - Licence: projet de synthèse (activité intégratrice), 30 h, Faculté des Sciences et Techniques, Université de Lorraine
  - Licence: système, 24h, Faculté des Sciences et Techniques, Université de Lorraine
  - Licence: compilation, 16, Faculté des Sciences et Techniques, Université de Lorraine

9.2.2. Supervision

PhD: Jaime Garcia Guevara, Biomechanical graph matching for hepatic intra-operative image registration, October 2015, Marie-Odile Berger, Stéphane Cotin (MIMESIS). PhD defended in December 2019.

PhD in progress: Raffaella Trivisonne, Image-guided real-time simulation using stochastic filtering, November 2015, Erwan Kerrien, Stéphane Cotin (MIMESIS).

PhD in progress: Vincent Gaudillière, Reconnaissance de lieux et d'objets pour la réalité augmentée en milieux complexes, December 2016, Marie-Odile Berger, Gilles Simon.

PhD in progress: Daryna Panicheva, Image-based Biomechanical Simulation of Mitral Valve Closure, October 2017, Marie-Odile Berger, Pierre-Frédéric Villard.

PhD in progress: Matthieu Zins, Localization in a world of objects, October 2019, Marie-Odile Berger, Gilles Simon.

9.2.3. Juries

- Marie-Odile Berger was an external reviewer of the PhD of Karim Makki (IMT Atlantique, Brest) and of the HdR of Guillaume Caron (Univ Picardie Jules Verne). She was examiner of the PhD of Yilin Zhou (IGN, Paris), Florian Tilquin (ICUBE, Strasbourg) and of the HdR of Omar Ait Aider (Institut Pascal, Clermont Ferrand)

- Erwan Kerrien was an external reviewer for the PhD of Alessio Virzì (Université Paris Saclay and Telecom ParisTech) and Emmanuelle Poulain (I3S, Université Côte d'Azur)
- Frédéric Sur was an external reviewer for the PhD thesis of Debolina Chakraborty (IIEST Shibpur, India) and Alberto Lavatelli (Polytecnico di Milano, Italy)

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

Erwan Kerrien is Chargé de Mission for scientific mediation at Inria Nancy-Grand Est, and thereby is part of the Inria scientific mediation network. As such, he is a member of the steering committee of "la Maison pour la Science de Lorraine" [0], and member of the IREM [0] steering council.

9.3.2. Education

- Pierre-Frédéric Villard is involved with the secondary school of Champigneulles (France) as a "Collège Pilote" of "La Main à la pâte" foundation. He gave a seminar on augmented and virtual realities to the pupils, he helped the teacher with preparing some activities with augmented and virtual reality technologies. Finally, he is supervising Université de Lorraine students to produce teaching applications with augmented and virtual reality technologies that will be used in secondary school classes.
- Erwan Kerrien participated in the creation and animation of a MOOC for teachers of the new SNT class (Sciences du Numérique et Technologie - *Digital Science and Technology* included in the 1st year of core curriculum in upper secondary education, see https://www.fun-mooc.fr/courses/course-v1:inria+41018+session01/about), where he brought his expertise in image processing. This MOOC is part of the Class'Code project (https://pixees.fr/classcode-v2).

  He also participates in *MOOCFOLIO*, a PIA3-funded project https://www.fun-mooc.fr/news/pia-3-le-projet-moocfolio-est-laureat/). The objective is to create a MOOC to help students choose their undergraduate studies to pursue after high schools. Erwan is part of a working group to create a module about studies and professions related to digital usages and sciences.

  He also participated in the creation, and teaching, of a 5-day training course for scientific animators (in a broad sense, from science club animators to science teachers). This course was funded by Région Grand-Est (see https://fan.loria.fr).

  He gave a 2-day class about the use of unplugged computer science to introduce computer science in science class, along with another researcher and 2 secondary school maths teachers. This class has been organized with Maison pour la Science since 2015, and is proposed to around 20 maths and science secondary school teachers each year.

9.3.3. Interventions

Erwan Kerrien was an associate researcher to a MATh.en.JEANS workshop (https://www.mathenjeans.fr) within Loritz high school in Nancy.

He also regularly intervenes to demonstrate computer science unplugged activities and/or give conferences to secondary school pupils and teachers.

9.3.4. Internal action

Pierre-Frédéric Villard participated to open days and science festival in the IUT of Saint-Dié des Vosges. He presented augmented and virtual reality demos and their link to the high school mathematics program.

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[0]"Houses for Science" project, see http://maisons-pour-la-science.org/en
[0]Institut de Recherche sur l'Enseignement des Mathématiques - *Research Institute for Teaching Mathematics*

MANAO Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Member of the Conference Program Committees

Eurographics Workshop on Graphics and Cultural Heritage (GCH), Eurographics 2019, Eurographics Symposium on Rendering 2019 (EGSR), ACM Siggraph Asia 2019 talks and posters.

10.1.1.2. Reviewer

ACM Siggraph 2019, ACM Siggraph Asia 2019, ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games 2019 (I3D), Eurographics Workshop on Graphics and Cultural Heritage (GCH), Pacific Graphics 2019, SIBGRAPI 2019.

10.1.2. Journal

10.1.2.1. Reviewer - Reviewing Activities

ACM Transactions on Graphics (TOG), Computer Graphics Forum (CGF), Computer and Graphics, ACM Journal on Computing and Cultural Heritage (JOCCH).

10.1.3. Invited Talks

Talk at the DYVITO workshop 2019, in Giessen, Germany.
Talk at the Shitsukan workshop 2019, in Kyoto, Japan.

10.1.4. Leadership within the Scientific Community

One member of the team is member of the Steering Board of the Eurographics Workshop on Graphics and Cultural Heritage.

10.1.5. Scientific Expertise

We review project submissions of the Horizon 2020 - Research and Innovation Action of the European Commission.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

The members of our team are involved in teaching computer science at University of Bordeaux and Institut d'Optique Graduate School (IOGS). General computer science is concerned, as well as the following graphics related topics:

> Master : Pierre Bénard, Gaël Guennebaud, Advanced Image Synthesis, 50 HETD, M2, Univ. Bdx, France.
>
> Master : Antoine Lucat, Simulations Radiométriques avancées, 20 HETD, M2, IOGS, France
>
> Master : Gaël Guennebaud, Geometric Modeling, 31 HETD, M2, IOGS, France
>
> Master : Gaël Guennebaud and Pierre Bénard, 3D Worlds, 60 HETD, M1, Univ. Bdx and IOGS, France.
>
> Master : Pierre Bénard, Patrick Reuter, Virtual Reality, 20 HETD, M2, Univ. Bdx, France.
>
> Master : Patrick Reuter, Graphical user interfaces and Spatial augmented reality seminars, M2, ESTIA, France.
>
> Licence : Patrick Reuter, Digital Imaging, 30 HETD, L3, Univ. Bdx, France.

One member is also in charge of a field of study:

Master : Pierre Bénard, M2 "Informatique pour l'Image et le Son", Univ de Bordeaux, France.

Pierre Bénard was also part of the education team of the DIU (Diplôme Inter-Universitaire) titled "Numérique et Sciences Informatiques" which is opened to secondary professors that are teaching Computer Science in high school. The first session took place during the last three weeks of June.

10.2.2. Supervision

PhD: Thomas Crespel, Optical and software tools for the design of a new transparent 3D display, Inria & Univ. Bordeaux, P. Reuter & X. Granier, 9 December 2019

PhD in progress: Antoine Lucat, Appearance Acquisition and Rendering, IOGS & Univ. Bordeaux, R. Pacanowski & X. Granier

PhD in progress: Charlotte Herzog, 3 dimensions X-rays imaging for medical applications, Imaging Optics, IOGS & Univ. Bordeaux, X. Granier

PhD in progress: Camille Brunel, Real-Time Animation and Deformation of 3D Characters, Inria & Univ. Bordeaux, P. Barla, G. Guennebaud & P. Bénard

PhD in progress: Megane Bati, Inverse Design for Complex Material Apperance, IOGS & Univ. Bordeaux, R. Pacanowski & P. Barla

PhD in progress: Charlie Schlick, Augmented reality with transparent multi-view screens, Inria & Univ. Bordeaux, P. Reuter

PhD in progress: Corentin Cou, Characterization of visual appearance for 3D restitution and exploration of monumental heritage, Inria & IOGS & CNRS/INHA, G. Guennebaud, X. Granier, M. Volait, R. Pacanowski.

10.2.3. Juries

PhD (jury member) : Johanna Delanoy, Université Côte d'Azur (June 4th).

PhD (jury member) : Fan Zhang, TU Delft, Netherlands (October 29th).

PhD (reviewer) : Xavier Chermain, Université de Limoges (November 27th).

Pierre Bénard was the president of a jury for the Professional Baccalauréat (June 4th and 9th).

10.3. Popularization

10.3.1. Interventions

- "Textile 3D" exhibition at the MEB (Musée Ethnographique de Bordeaux, from October 1st 2019 to May 29th 2020).

- During the national "Fête de la Science" event at Inria Bordeaux Sud-Ouest, Pierre Bénard gave a 30 minutes talk titled *L'art et la science des films d'animation 3D*, and Camille Brunel presented her background and Phd topic to schoolchildren (October 8th to 10th).

- During the national "Fête de la Science" event at Musée Ethnographique de Bordeaux, Pascal Barla helped organise a workshop for high school students on the topic of the appearance of textiles, in conjunction of the "Textile 3D" exhibition. With Mégane Bati, they have participated during the workshop as scientific animators (October 7th to 8th).

- We organized a Mini-forum 3D to gather Master students together with researches and companies from the Bordeaux area (November 19th).

- Pierre Bénard presented the team research activities to 3rd year Bachelor students from ENS Lyon (December 5th).

MAVERICK Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Selection

8.1.1.1. Member of the Conference Program Committees

- Romain Vergne: AFIG 2019
- Romain Vergne: SIBGRAPI 2019
- Joëlle Thollot: *Expressive* 2019.
- Nicolas Holzschuch: Eurographics 2020, Sibgrapi 2019, Eurographics Symposium on Rendering Steering Committee

8.1.2. Journal

All members of the Maverick team work as reviewers for the most prestigious journals, including ACM TOG, IEEE TVCG, CGF, etc.

8.1.3. Invited Talks

- Fabrice Neyret presented a 1 hour invited talk "Managing Ultra-high Complexity in Real-time Graphics: Some Hints and Ingredients" at HPG'2019 (ACM-SIGGRAPH-Eurographics Symposium on High-Performance Graphics) [9].
- Fabrice Neyret presented a 1 hour opening invited talk "Graphics vs Physics: the light and dark sides of the Force" [8] in pair with Emmanuel Delangre (Ladhyx - Ecole Polytechnique) at GraPhyz'2019, a new international workshop bridging Physics and Computer Graphics communities.
- Romain Vergne presented a 1 hour invited talk "ensuring congruency between shape and light" at IRIT: Institut de Recherche en Informatique de Toulouse.

8.1.4. Research Administration

- Georges-Pierre Bonneau is member of the "conseil du Laboratoire Jean Kuntzmann".
- Romain Vergne is member of the "conseil du Laboratoire Jean Kuntzmann".
- Romain Vergne is co-responsible of the Rendering Working Group of the French Association ofr Computer Graphics (AFIG).
- Romain Vergne is co-responsible of the PhD students of the Laboratoire Jean Kuntzmann.
- Nicolas Holzschuch is an elected member of CNESER (National Council for Higher Education and Research), 2019 — 2023.
- Nicolas Holzschuch is an elected member of Inria Evaluation Committee (CE), an elected member of Inria Comité Technique (CTI) and a reserve member of Inria Scientific Council (CS).
- Nicolas Holzschuch is responsible for the department "Geometry and Images" of the Laboratoire Jean Kuntzmann.
- Nicolas Holzschuch is co-head of the Inria International Laboratory "Inria - EPFL".
- Nicolas Holzschuch is an elected member of Conseil Académique of the COMUE Université Grenoble-Alpes

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Joëlle Thollot and Georges-Pierre Bonneau are both full Professor of Computer Science. Romain Vergne is an associate professor in Computer Science. They teach general computer science topics at basic and intermediate levels, and advanced courses in computer graphics and visualization at the master levels. Joëlle Thollot is in charge of the MMIS ENSIMAG cursus (master level) with Stefanie Hahmann. Nicolas Holzschuch teaches advanced courses in computer graphics at the master level.

Licence: Joëlle Thollot, Théorie des langages, 45h, L3, ENSIMAG, France

Licence: Joëlle Thollot, Séminaire d'innovation, 10h, L3, ENSE3, France

Licence: Joëlle Thollot, MAP, 10h, L3, ENSIMAG, France

Master : Joelle Thollot, TD de créativité, 7h, M1, ENSIMAG, France.

Master : Joelle Thollot, English courses using theater, 18h, M1, ENSIMAG, France.

Licence : Romain Vergne, Introduction to algorithms, 64h, L1, UGA, France.

Licence : Romain Vergne, WebGL, 29h, L3, IUT2 Grenoble, France.

Licence : Romain Vergne, Programmation, 68h. L1, UGA, France.

Master : Romain Vergne, Image synthesis, 27h, M1, UGA, France.

Master : Romain Vergne, 3D graphics, 15h, M1, UGA, France.

Master : Nicolas Holzschuch, Computer Graphics II, 18h, M2 MoSIG, France.

Master : Nicolas Holzschuch, Synthèse d'Images et Animation, 32h, M2, ENSIMAG, France.

Licence: Georges-Pierre Bonneau, Algorithmique et Programmation Impérative, 23h, L3, Polytech-Grenoble, France.

Master: Georges-Pierre Bonneau, responsable de la 4ième année du département INFO, 32h, M1, Polytech-Grenoble, France

Master: Georges-Pierre Bonneau, Image Synthesis, 23h, M1, Polytech-Grenoble, France

Master: Georges-Pierre Bonneau, Data Visualization, 40h, M2, Polytech-Grenoble, France

Master: Georges-Pierre Bonneau, Digital Geometry, 23h, M1, UGA

Master: Georges-Pierre Bonneau, Information Visualization, 22h, Mastere, ENSIMAG, France.

Master: Georges-Pierre Bonneau, Scientific Visualization, M2, ENSIMAG, France.

Master: Georges-Pierre Bonneau, Computer Graphics II, 18h, M2 MoSiG, UGA, France.

8.2.2. Supervision

PhD: Alban Fichet, Efficient representation for measured reflectance, UGA, 13/12/2019, Nicolas Holzschuch.

PhD in progress: Vincent Tavernier, Procedural stochastic textures, 1/10/2017, Fabrice Neyret, Joëlle Thollot, Romain Vergne.

PhD in progress: Sunrise Wang, Light transport operators simplification using neural networks, 1/9/2018, Nicolas Holzschuch

PhD in progress: Morgane Gérardin, Connecting physical and chemical properties with material appearance, 1/10/2018, Nicolas Holzschuch

PhD in progress: Ronak Molazem, Dimensional Analysis of Light Transport, 1/09/2018, Cyril Soler

PhD in progress: Nolan Mestre, Rendering of panorama maps, 1/10/2019, Joëlle Thollot, Romain Vergne.

8.2.3. Juries

Romain Vergne, member of the jury, PhD of Julien Fayer, University of Toulouse, 19/04/2019.

Joëlle Thollot, president of the jury, PhD of Geoffrey Guingo, Université Grenoble-Alpes, 3/12/2019

Joëlle Thollot, president of the jury, PhD of Maxime Garcia, Université Grenoble-Alpes, 19/12/2019

Georges-Pierre Bonneau, reviewer, PhD of Yohann Bearzi, Université Claude Bernard Lyon 1, 8/11/2019

Georges-Pierre Bonneau, reviewer, PhD of Maxime Soler, Sorbonne Universités, 20/06/19

8.3. Popularization

8.3.1. Articles and contents

- Fabrice Neyret maintains the blog shadertoy-Unofficial and various shaders examples on Shadertoy site to popularize GPU technologies as well as disseminates academic models within computer graphics, computer science, applied math and physics fields. About 26k pages viewed and 12k unique visitors (87% out of France) in 2019.

- in 2019, Fabrice Neyret launched the blog desmosGraph-Unofficial to popularize the use of interactive grapher DesmosGraph for research, communication and pedagogy. For this year, about 1k pages viewed and 800 unique visitors (95% out of France).

8.3.2. Interventions

In the scope of MathC2+ (partnership with French ministry of Education and "Fondation Sciences mathématiques de Paris") Inria Rhône-Alpes hosted in June, 2019 a selection of about 30 motivated high-school students (level "second") for a day of presentations, demos and discussions. Fabrice Neyret did a 1h presentation on "Math and Physics in special effects and video games" plus discussions about his curriculum and questions.

MFX Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Chair of Conference Program Committees

- Sylvain Lefebvre was a program co-chair for the SGP 2019 graduate school.

10.1.1.2. Member of the Conference Program Committees

- Jonàs Martínez was on the full papers program committee of EUROGRAPHICS 2020.
- Sylvain Lefebvre was a conflict of interest coordinator for ACM SIGGRAPH 2019.
- Sylvain Lefebvre was on the paper advisory board of EUROGRAPHICS 2020.
- Sylvain Lefebvre was on the papers program committee of SMI 2019.

10.1.1.3. Reviewer

- Jonàs Martínez was reviewer for ACM SIGGRAPH, Pacific Graphics, and the Symposium on Solid and Physical Modeling (SPM).
- Sylvain Lefebvre was a reviewer for ACM SIGGRAPH and ACM SIGGRAPH Asia.
- Samuel Hornus was a reviewer for ACM SIGGRAPH 2019, SPM 2019 (Symposium on Physical Modeling), HPG 2019 (High Performance Graphics) and EUROGRAPHICS 2020.

10.1.2. Journal

10.1.2.1. Reviewer - Reviewing Activities

- Jonàs Martínez was a reviewer for the ACM Transactions on Graphics journal and the SV–Journal of Mechanical Engineering.
- Cédric Zanni was a reviewer for the Elsevier Computer and Graphics journal and the Elsevier Graphical Models journal.
- Sylvain Lefebvre was a reviewer for the ACM Transactions on Graphics journal and the Computer Aided Geometric Design journal.
- Samuel Hornus was a reviewer for the Computer Graphics Forum journal.

10.1.3. Invited Talks

Jonàs Martínez gave an invited talk at Journées Matériaux Numériques 2019 entitled "Generalized Voronoi Diagrams for Metamaterial Design".

Sylvain Lefebvre gave a keynote at SCF 2019 (Pitsburg, USA), at the IS2M annual meeting (Mulhouse, France) and at the JGA 2019 (La Bresse, France).

10.1.4. Research Administration

Jonàs Martínez is the scientific correspondent for Europe (Inria Nancy Grand-Est). Samuel Hornus is the chair of the CDT (Commission de dévelopement technologique) of Inria Nancy Grand-Est.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master : Jonàs Martínez, Introduction to data parallelism, 14 ETD, Université de Lorraine, France.

Master : Jonàs Martínez, Geometric modelling for additive manufacturing, 10 ETD, ENSEM Nancy, France.

Master: Cédric Zanni, Software Engineering, 13.5h ETD, M1, École des Mines de Nancy, France.

Master: Cédric Zanni, Operating System, 12h ETD, M1, École des Mines de Nancy, France.

Master: Cédric Zanni, Introduction to C/C++, 27h ETD, M1, École des Mines de Nancy, France.

Master: Cédric Zanni, Techniques for video game programming, 54h ETD, M1, École des Mines de Nancy, France.

Master: Sylvain Lefebvre, Additive manufacturing for soft robotics, 6h ETD, École Polytechnique, Saclay, France.

Master: Sylvain Lefebvre, Introduction to parallel programming, 9h ETD, ENSG Nancy, France.

Master: Sylvain Lefebvre, Introduction to additive manufacturing, 9h ETD, ENSEM Nancy, France.

License : Cédric Zanni, Computer science, 11h ETD, École des Mines de Nancy, France.

License : Cédric Zanni, Introduction to Computer Science, 13.5h ETD, École des Mines de Nancy, France.

License : Samuel Hornus, Mathematics for Computer Science, 64h ETD, Télécom Nancy, France. (responsible of class series for 2019-2020, 2020-2021.)

IUT: Thibault Tricard, Data structures, data bases, 40h ETD.

IUT: Jimmy Étienne, Introduction to programming, 64h ETD.

10.2.2. Supervision

- PhD in progress : Thibault Tricard, Procedural synthesis of structured patterns, started October 2018, advisors: Sylvain Lefebvre, Dider Rouxel (IJL).

- PhD in progress : Jimmy Étienne, Curved slicing for additive manufacturing, started September 2018, advisors: Sylvain Lefebvre, Cédric Zanni

- PhD in progress : Semyon Efremov, procedural microstructures for additive manufacturing, started October 2018, advisors: Jonàs Martínez, Sylvain Lefebvre

- PhD in progress : Melike Aydinlilar, Implicit modeling for additive manufacturing, started November 2019, advisors: Cédric Zanni, Sylvain Lefebvre.

10.2.3. Juries

Sylvain Lefebvre was reviewer (*rapporteur)* on the PhD thesis of Geoffroy Guingo (University of Strasbourg) and participated in the thesis mid-term committees of Nicolas Lutz et Pascal Guehl (University of Strasbourg).

Sylvain Lefebvre was a member of the jury for the Young Researcher Fellow EGFR, which awards every year a young French researcher with outstanding research and community contributions in the field of Computer Graphics.

10.3. Popularization

10.3.1. Articles and contents

Sylvain Lefebvre co-authored a position paper for NEM on Creative AI [18], and appeared in a short movie on the Creativ'Lab's shared fabrication space and MFX's research.

10.3.2. Interventions

In March 2019, IceSL was presented at the **Maker Faire Lille**, with a focus on color printing, printing big parts using cavities and polyfoams (all results from prior years now available in IceSL). IceSL was presented during an **Inria Tech Talk at Station-F** in Paris, along with a display of best prints [0].

In April 2019, IceSL was presented to an audience of designers for the second part of **Affinité Design** (http://www.affinitedesign.com/), with a discussion about the transition from 3D printing to "4D printing", in a joint talk with Sylvain Lefebvre, Jean-Claude André and Samuel Kenzari (http://www.nancy.archi.fr/fr/biennale-du-design-grand-est-2019_-e.html). In October 2019, Pierre Bedell and Pierre-Alexandre Hugron presented IceSL at **OctoberMAKE**, a meeting organised by the French FabLabs network (http://www.fablab.fr/octobermake/). Sylvain Lefebvre gave an IceSL tutorial at the **Soft Robotics days** in Lille (https://jrs2019.sciencesconf.org/). Sylvain Lefebvre created quick tutorial videos on Youtube (channel *icesl-fr*), to help introduce new users to IceSL.

Sylvain Lefebvre gave a presentation at **Grand-Est Numerique** 2019, geared towards start-ups, presenting results from MFX.

10.3.3. Internal action

The team actively participated to the inauguration of the Creativ'Lab space in December 2019.

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[0]https://french-tech-central.com/events/du-modele-3d-a-la-piece-fabriquee-utilisez-icesl-pour-vos-prototypages/

<h1 style="text-align:center; color:red;">MIMETIC Project-Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- Marc Christie, Co-chair and co-organizer of the 8th Eurographics WICED event (Workshop on Intelligent Cinematography and Editing), 2019
- Anne-Hélène Olivier, Co-organizer of the workshop "Modeling and Animating Realistic Crowds and Humans (MARCH)" during the AIVR Conference, San Diego, USA, December 2019
- Anne-Hélène Olivier, Co-Organizer of the Symposium " Going from here to there and beyond: Fundamental theories and applications from what we have learned about human navigation of cluttered environments", ISPGR 2019, Edinburgh, Scotland, July 2019
- Anne-Hélène Olivier, Co-organizer of the workshop "Virtual Humans and Crowds in Immersive Environments" (VHCIE) during IEEE VR Conference Osaka Japan, March 2019

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Ludovic Hoyet, Co-Program Chair of the 19th ACM Symposium on Applied Perception, Barcelona, September 2019
- Ludovic Hoyet, Co-Workshop Chair for of the 32nd International Conference on Computer Animation and Social Agents, Paris, July 2019
- Ludovic Hoyet, Animation & Simulation Area Program Chair, International Conference on Computer Graphics Theory and Applications 2019, Prague, Czech Republic, Feb. 2019
- Marc Christie, Area Chair, ACM TVX 2019, International Conference on Interactive Experiences for Television and Online Video
- Anne-Hélène Olivier, Conference Paper co-chair, IEEE Virtual Reality Conference, Osaka Japan, March 2019

10.1.2.2. Member of the Conference Program Committees

- Ludovic Hoyet, ACM Motion Interaction in Games MIG 2019
- Marc Christie, ACM Motion Interaction in Games MIG 2019
- Marc Christie, ACM Interactive Experiences for Television and Online Video TVX 2019
- Anne-Hélène Olivier, ACM Motion Interaction in Games MIG 2019
- Anne-Hélène Olivier, ACM Symposium on Applied Perception SAP 2019
- Anne-Hélène Olivier, ACM Symposium on Virtual Reality Software and Technology VRST, Technical Papers 2019
- Franck Multon, ACM Motion Interaction in Games MIG 2019
- Franck Multon, Computer Animation and Social Agents CASA2019

10.1.2.3. Reviewer

- Ludovic Hoyet, ISVC 2019, JFIG 2019, CRDH Workshop (AIVR 2019), VHCIE Workshop (IEEE VR 2019)
- Franck Multon, CASA 2019, MIG 2019

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Anne-Hélène Olivier, Review Editor in Frontiers in Virtual Reality - Technologies for VR
- Franck Multon, Presence, MIT Press
- Franck Multon, Computer Animation and Virtual Worlds CAVW, John Wiley
- Georges Dumont, Review Editor in Frontiers in Virtual Reality - Technologies for VR

10.1.3.2. Reviewer - Reviewing Activities

- Charles Pontonnier - Applied Science, Applied ergonomics, Multibody Systems Dynamics, Sensors, Complexity
- Marc Christie, ACM SIGGRAPH 2019, ACM SIGGRAPH ASIA 2019, TVCG
- Ludovic Hoyet, IEEE Transactions on Visualization and Computer Graphics, Neuroscience, Journal of Virtual Reality and Broadcasting, Journal on Multimodal User Interfaces
- Anne-Hélène Olivier, Virtual Reality, Gait and Posture
- Franck Multon, Virtual Reality, The Visual Computer, IEEE Robotics and Automation, International Journal of Industrial Ergonomics, Journal of Sports Sciences, Journal of Ergonomics
- Armel Crétual, Clinical Biomechanics, Medical and Biological Engineering and Computing, PlosONE, Sensors
- Georges Dumont, Journal of Biomechanics

10.1.4. Invited Talks

- Marc Christie, Workshop AI in Media at European Broadcast Union, Manchester 2019.
- Anne-Hélène Olivier, Sport Unlimitech, Lyon, September 2019.

10.1.5. Scientific Expertise

- Franck Multon, expertise for I-Site NExT from Nantes for the "International Research Partnerships" call for projects
- Franck Multon, FRQNT (Canada) for the evaluation of 4 collaborative projects in Quebec on the topic "computer sciences - human-robot interaction"

10.1.6. Research Administration

- Ludovic Hoyet is an elected member of the Board of Managers for the French Computer Graphics Association (Association Française d'Informatique Graphique), since Oct. 2017
- Ludovic Hoyet is an elected member of the Inria Laboratory Board, since Sept. 2019.
- Franck Multon is the Inria national coordinator for digital sciences for Sports, since Sept 2018

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master : Franck Multon, co-leader of the IEAP Master (1 and 2) "Ingénierie et Ergonomie de l'Activité Physique", STAPS, University Rennes2, France
- Master : Franck Multon, "Santé et Performance au Travail : étude de cas", leader of the module, 30H, Master 1 M2S, University Rennes2, France
- Master : Franck Multon, "Analyse Biomécanique de la Performance Motrice", leader of the module, 30H, Master 1 M2S, University Rennes2, France
- Master: Charles Pontonnier, "Numerical simulation of polyarticulated systems", leader of the module, 22H, M1 Mechatronics, Ecole Normale Supérieure de Rennes, France

- Master: Charles Pontonnier, Responsible of the internships of students (L3 and M1), 15H, Ecole Normale Supérieure de Rennes, France
- Master: Charles Pontonnier, Reearch projects, 20H, Ecole Normale Supérieure de Rennes, France
- Master : Georges Dumont, Responsible of the second year of the master Engineering of complex systems, École Normale Supérieure de Rennes and Rennes 1 University, France
- Master : Georges Dumont, Mechanical simulation in Virtual reality, 36H, Master Engineering of complex systems and Mechatronics, Rennes 1 University and École Normale Supérieure de Rennes, France
- Master : Georges Dumont, Mechanics of deformable systems, 40H, Master, École Normale Supérieure de Rennes, France
- Master : Georges Dumont, oral preparation to agregation competitive exam, 20H, Master, École Normale Supérieure de Rennes, France
- Master : Georges Dumont, Vibrations in Mechanics, 10H, Master, École Normale Supérieure de Rennes, France
- Master : Georges Dumont, Finite Element method, 12H, Master, École Normale Supérieure de Rennes, France
- Master : Ludovic Hoyet, Motion Analysis and Gesture Recognition, 12h, INSA Rennes, France
- Master : Ludovic Hoyet, Réalité Virtuelle pour l'Analyse Ergonomique, Master Ingénierie et Ergonomie des Activités Physique, 21h, University Rennes 2, France
- Master : Anne-Hélène Olivier, co-leader of the APPCM Master (1 and 2) "Activités Physiques et Pathologies Chroniques et Motrices", STAPS, University Rennes2, France
- Master : Anne-Hélène Olivier, "Biostatstiques", 21H, Master 2 APPCM/IEAP, University Rennes2, France
- Master : Anne-Hélène Olivier, "Evaluation fonctionnelle des pathologies motrices", 3H Master 2 APPCM, University Rennes2, France
- Master : Anne-Hélène Olivier, "Maladie neurodégénératives : aspects biomécaniques", 2H Master 1 APPCM, University Rennes2, France
- Master : Anne-Hélène Olivier, "Biostatstiques", 7H, Master 1 EOPS, University Rennes2, France
- Master : Anne-Hélène Olivier, "Méthodologie", 10H, Master 1 IEAP/APPCM, University Rennes2, France
- Master : Anne-Hélène Olivier, "Contrôle moteur : Boucle perceptivo-motrice", 3H, Master 1IEAP, Université Rennes 2, France
- Master: Fabrice Lamarche, "Compilation pour l'image numérique", 29h, Master 1, ESIR, University of Rennes 1, France
- Master: Fabrice Lamarche, "Synthèse d'images", 12h, Master 1, ESIR, University of Rennes 1, France
- Master: Fabrice Lamarche, "Synthèse d'images avancée", 28h, Master 1, ESIR, University of Rennes 1, France
- Master: Fabrice Lamarche, "Modélisation Animation Rendu", 36h, Master 2, ISTIC, University of Rennes 1, France
- Master: Fabrice Lamarche, "Jeux vidéo", 26h, Master 2, ESIR, University of Rennes 1, France
- Master: Fabrice Lamarche, "Motion for Animation and Robotics", 9h, Master 2 SIF, ISTIC, University of Rennes 1, France.
- Master : Armel Crétual, "Méthodologie", leader of the module, 20H, Master 1 M2S, University Rennes2, France

- Master : Armel Crétual, "Biostatstiques", leader of the module, 30H, Master 2 M2S, University Rennes2, France
- Master : Richard Kulpa, "Boucle analyse-modélisation-simulation du mouvement", 27h, leader of the module, Master 2, Université Rennes 2, France
- Master : Richard Kulpa, "Méthodes numériques d'analyse du geste", 27h, leader of the module, Master 2, Université Rennes 2, France
- Master : Richard Kulpa, "Cinématique inverse", 3h, leader of the module, Master 2, Université Rennes 2, France
- Master: Marc Christie, "Multimedia Mobile", Master 2, leader of the module, 32h, Computer Science, University of Rennes 1, France
- Master: Marc Christie, "Projet Industriel Transverse", Master 2, 32h, leader of the module, Computer Science, University of Rennes 1, France
- Master: Marc Christie, "Modelistion Animation Rendu", Master 2, 16h, leader of the module, Computer Science, University of Rennes 1, France
- Master: Marc Christie, "Advanced Computer Graphics", Master 1, 10h, leader of the module, Computer Science, ENS, France
- Licence : Franck Multon, "Ergonomie du poste de travail", Licence STAPS L2 & L3, University Rennes2, France
- Licence: Charles Pontonnier, "Lagrangian Mechanics" , leader of the module, 22H, L3 Mechatronics, Ecole Normale Supérieure de Rennes, France
- Licence: Charles Pontonnier, "Serial Robotics", leader of the module, 24H, L3 Mechatronics, , Ecole Normale Supérieure de Rennes, France
- Licence : Anne-Hélène Olivier, "Analyse cinématique du mouvement", 100H , Licence 1, University Rennes 2, France
- Licence : Anne-Hélène Olivier, "Anatomie fonctionnelle", 7H , Licence 1, University Rennes 2, France
- Licence : Anne-Hélène Olivier, "Effort et efficience", 12H , Licence 2, University Rennes 2, France
- Licence : Anne-Hélène Olivier, "Locomotion et handicap", 12H , Licence 3, University Rennes 2, France
- Licence : Anne-Hélène Olivier, "Biomécanique spécifique aux APA", 8H , Licence 3, University Rennes 2, France
- Licence : Anne-Hélène Olivier, "Biomécanique du viellissement", 12H , Licence 3, University Rennes 2, France
- Licence: Fabrice Lamarche, "Initiation à l'algorithmique et à la programmation", 56h, License 3, ESIR, University of Rennes 1, France
- License: Fabrice Lamarche, "Programmation en C++", 46h, License 3, ESIR, University of Rennes 1, France
- Licence: Fabrice Lamarche, "IMA", 24h, License 3, ENS Rennes, ISTIC, University of Rennes 1, France
- Licence : Armel Crétual, "Analyse cinématique du mouvement", 100H, Licence 1, University Rennes 2, France
- Licence : Richard Kulpa, "Biomécanique (dynamique en translation et rotation)", 48h, Licence 2, Université Rennes 2, France
- Licence : Richard Kulpa, "Méthodes numériques d'analyse du geste", 48h, Licence 3, Université Rennes 2, France
- Licence : Richard Kulpa, "Statistiques et informatique", 15h, Licence 3, Université Rennes 2, France

10.2.2. Supervision

PhD in progress (beginning September 2017): Pierre Puchaud, Développement d'un modèle musculo-squelettique générique du soldat en vue du support de son activité physique, Ecole normale supérieure, Charles Pontonnier & Nicolas Bideau & Georges Dumont

PhD in progress (beginning January 2019): Nils Hareng, simulation of plausible bipedal locomotion of human and non-human primate, University Rennes2, Franck Multon, & Bruno Watier (CNRS LAAS in Toulouse)

PhD in progress (beginning January 2019): Nicolas Olivier, Adaptive Avatar Customization for Immersive Experience, Cifre InterDigital, Franck Multon, Ferran Arguelaget (Hybrid team), Quentin Avril (InterDigital), Fabien Danieau (InterDigital)

PhD in progress (beginning September 2017): Lyse Leclerc, Intérêts dans les activités physiques du rétablissement de la fonction inertielle des membres supérieurs en cas d'amputation ou d'atrophie, Armel Crétual, Diane Haering

PhD in progress (beginning September 2018) : Jean Basset, Learning Morphologically Plausible Pose Transfer, Inria, Edmond Boyer (Morpheo Inria Grenoble), Franck Multon

PhD in progress (beginning October 2018): Hiep Pham Tuan, Heterogeneous data fusion for safeguarding of cultural heritage of dance, University Reims Champagne Ardennes, Celine Loscos (University Reims), Franck Multon

PhD in progress (beginning September 2017): Simon Hilt, Haptique Biofidèle pour l'Interaction en réalité virtuelle, Ecole normale supérieure, Georges Dumont, Charles Pontonnier

PhD in progress (beginning September 2018): Olfa Haj Mamhoud, Monitoring de l'efficience gestuelle d'opérateurs sur postes de travail, University Rennes 2, Franck Multon, Georges Dumont, Charles Pontonnier

PhD in progress (beginning September 2019) : Claire Livet, Dynamique contrainte pour l'analyse musculo-squelettique en temps rapide : vers des méthodes alternatives d'estimation des forces musculaires mises en jeu dans le mouvement humain, Ecole normale supérieure, Georges Dumont, Charles Pontonnier

PhD in progress (beginning september 2019) : Louise Demestre, simulation MUsculo-squelettique et Structure Elastique pour le Sport (MUSES), Ecole normale supérieure, Georges Dumont, Charles Pontonnier, Nicolas Bideau, Guillaume Nicolas

PhD in progress: Diane Dewez, Avatar-Based Interaction in Virtual Reality, Oct. 2018, Ferran Argelaguet, Ludovic Hoyet, Anatole Lécuyer. Coll. with Hybrid team.

PhD in progress: Rebecca Fribourg, Enhancing Avatars in Virtual Reality through Control, Interactions and Feedback, Sept. 2017, Ferran Argelaguet, Ludovic Hoyet, Anatole Lécuyer. Coll. with Hybrid team

PhD in progress: Florian Berton, Design of a virtual reality platform for studying immersion and behaviours in aggressive crowds, Nov. 2017, Ludovic Hoyet, Anne-Hélène Olivier, Julien Pettré. Coll with Rainbow team

PhD in progress: Benjamin Niay, A framework for synthezing personalised human motions from motion capture data and perceptual information, Oct. 2018, Ludovic Hoyet, Anne-Hélène Olivier, Julien Pettré. Coll. with Rainbow team

PhD in progress: Alberto Jovane, Modélisation de mouvements réactifs et comportements non verbaux pour la création d'acteurs digitaux pour la réalité virtuelle, Sept. 2019, Marc Christie, Ludovic Hoyet, Claudio Pacchierotti, Julien Pettré. Coll. with Rainbow team

PhD in progress: Adèle Colas, Modélisation de comportements collectifs réactifs et expressifs pour la réalité virtuelle, Nov. 2019, Ludovic Hoyet, Anne-Hélène Olivier, Claudio Pacchierotti, Julien Pettré. Coll. with Rainbow team

PhD in progress: Hugo Brument, Toward user-adapted interactions techniques based on human locomotion laws for navigating in virtual environments, Oct. 2018, Anne-Hélène Olivier, Ferran Argelaguet, Maud Marchal. Coll. with Hybrid team

PhD in progress: Lyse Leclercq, Intérêts dans les activités physiques du rétablissement de la fonction inertielle des membres supérieurs en cas d'amputation ou d'atrophie, Sep. 2017, Armel Crétual, Diane Haering

PhD in progress: Florence Gaillard, Validation d'un protocole d'analyse 3D du mouvement des membres supérieurs en situation écologique chez les enfants ayant une Hémiplégie Cérébrale Infantile, Armel Crétual, Isabelle Bonan

PhD in progress: Karim Jamal, Effets des stimulations sensorielles par vibration des muscles du cou sur les perturbations posturales secondaires aux troubles de la représentation spatiale après un accident vasculaire cérébral, Sep 2016, Isabelle Bonan, Armel Crétual

PhD in progress: Carole Puil, Impact d'une stimulation plantaire orthétique sur la posture d'individus sains et posturalement déficients au cours de la station debout, et lors de la marche, Sep. 2018, Armel Crétual, Anne-Hélène Olivier

PhD: Charles Faure, Analyse en réalité virtuelle de la coopération lors d'une interception de balle : interaction et interférence, Sep. 2016, defense 17/01/2019, Richard Kulpa, Benoit Bideau

PhD in progress: Théo Perrin, Evaluation de la perception de l'effort en réalité virtuelle pour l'entraînement sportif, Sep. 2017, Richard Kulpa, Benoit Bideau

PhD in progress: Annabelle Limballe, Anticipation dans les sports de combat : la réalité virtuelle comme solution innovante d'entraînement, Sep. 2019, Richard Kulpa & Benoit Bideau

PhD in progress: Alexandre Vu, Evaluation de l'influence des feedbacks sur la capacité d'apprentissage dans le cadre d'interactions complexes entre joueurs et influence de ces feedbacks en fonction de l'activité sportive , Sep. 2019, Richard Kulpa & Benoit Bideau

10.2.3. Juries

- PhD defense : École Nationale Supérieure d'Arts et Métiers, Samuel Hybois. « Approche numérique pour l'optimisation personnalisée des réglages d'un fauteuil roulant manuel ». 2019-10-14. Georges Dumont, President

- PhD defense : Université de Grenoble-Alpes, Chaowanan Khundam. « Évaluation de l'usage de la réalité virtuelle pour la promotion de patrimoine historique-Evaluation of the virtual reality usage for the promotion of historical heritage ». March 2019. Georges Dumont, President.

- PhD defense: University Toulouse 3, Guillaume Fumery, "Biomécanique du transport collectif de charges, vers une application clinique", january 2019. Franck Multon, Referee

- PhD defense: INSA Lyon, Samuel Carensac, "Contrôle physique de mouvement de personnages virtuels en environnement complexe", July 2019. Franck Multon, Referee

- HDR defense: Sorbonne University, Jonathan Savin, "Simulation de la variabilité du mouvement induite par la fatigue musculaire pour la conception ergonomique de postes de travail", november 2019, Franck Multon, Examiner

- HDR defense: University Lyon 1, Thomas Robert, "Analyse et simulation du maintien de l'équilibre debout chez l'humain", November 2019, Franck Multon, President

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Franck Multon is coordinating the national action of Inria in sports

10.3.2. Interventions

- Charles Pontonnier - "La simulation musculo-squelettique pour la robotique" - 4èmes rencontres interdisciplinaires Innovation, Robotique et Santé, December 2019
- Franck Multon - "fête de la Science" Rennes in Champs Libres for two days (October 4th and 5th) demos in the field of VR for sports for a wide public audience
- Franck Multon - "fête de la science" Paris (October 5th), stand-up talk about VR & Sports to the wide public audience, interview with "Esprit Sorcier" for a web-Tv diffusion
- Franck Multon - Sport Unlimitech Lyon, a large event about new technologies for sports (September 19-21), with keynote talks/round tables, managing the booths of Inria
- Armel Crétual - "La science sur les planches", Spectacle "Marcher!!!" avec le Collège Théophile Briant de Tinténiac et la compagnie Kali&Co
- Richard Kulpa - "La réalité virtuelle pour le sport, ludique mais encore ?", Mardis de l'Espace des Sciences, December 2019
- Richard Kulpa - Inria booth at Sport Unlimitech Lyon, a large event about new technologies for sports, September 2019
- Richard Kulpa - Booth at FIFA Women's World Cup 2019
- Anthony Sorel - Inria booth at Sport Unlimitech Lyon, a large event about new technologies for sports, September 2019

10.3.3. Internal action

- Franck Multon - "Journes scientifiques Inria", June 5-6th, plenary talk entitled "La réalité virtuelle pour le sport : un jeu vraiment sérieux ?"
- Franck Multon, Ronan Gaugne - "20 years of Immersia": Event organized by Inria Rennes/IRISA center, November 2019, plenary talks

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MOEX Project-Team

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8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. Member of the Organizing Committees

- Jérôme Euzenat was organiser of the 2nd Workshop on Interaction-Based Knowledge Sharing (WINKS) of the 5th Joint Ontology Workshop (JOWO), Graz (AT), 2019 (with Adrian Kemo, Dagmar Gromann, Ernesto Jiménez Ruiz, Marco Schorlemmer and Valentina Tamma) [10]
- Jérôme Euzenat had been organiser of the 14th Ontology matching workshop of the 19th ISWC, Auckland (NZ), 2019 (with Pavel Shvaiko, Ernesto Jiménez Ruiz, Cássia Trojahn dos Santos and Oktie Hassanzadeh)

8.1.2. Scientific Events: Selection

8.1.2.1. Member of the Conference Program Committees

- Manuel Atencia, Jérôme David and Jérôme Euzenat have been programme committee members of the "International Joint Conference on Artificial Intelligence (IJCAI)".
- Manuel Atencia, Jérôme David and Jérôme Euzenat have been programme committee member of the "Web Conference (WWW)".
- Manuel Atencia, Jérôme David and Jérôme Euzenat have been programme committee members of the "International semantic web conference (ISWC)".
- Jérôme Euzenat has been programme committee member of the "International Conference on Conceptual Structures (ICCS)".
- Jérôme Euzenat has been programme committee member of the "International conference on semantic systems (Semantics)".
- Jérôme Euzenat has been programme committee member of the "Journées Françaises d'intelligence artificielle fondamentale (JIAF)".
- Manuel Atencia and Jérôme David have been programme committee members of the "Extraction et Gestion des connaissances (EGC)".

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

- Jérôme Euzenat is member of the editorial board of *Journal of web semantics* (area editor), *Journal on data semantics* and the *Semantic web journal*.

8.1.3.2. Reviewer - Reviewing Activities

- Manuel Atencia had been reviewer for *Journal of web semantics*.
- Jérôme David had been reviewer for *Journal of web semantics*.
- Jérôme Euzenat had been reviewer for *Knowledge engineering reviews*.

8.1.4. Invited Talks

- "For knowledge", ISWC keynote speech, Auckland (NZ), 2019-10-29 (Jérôme Euzenat)

8.1.5. Leadership within the Scientific Community

- Jérôme Euzenat is member of the scientific council of the CNRS GDR on Formal and Algorithmic Aspects of Artificial intelligence.
- Jérôme Euzenat is EurAI fellow.
- Jérôme David is member of the board of the Extraction and gestion des connaissances (Knowledge extraction and management) conference series.

8.1.6. Scientific Expertise

- Jérôme Euzenat had been member of the HCERES visiting committee for the CRIL research laboratory.
- Jérôme Euzenat had been member of the recruitment committee of Université Grenoble Alpes for the associate professor position 27MCF330, 2019.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

8.2.1.1. Responsibilities

- Jérôme David is coordinator of the Master "Mathematiques et informatiques appliquées aux sciences humaines et sociales" (Univ. Grenoble Alpes);
- Manuel Atencia is co-responsible of the 2nd year of Master "Mathematiques et informatiques appliquées aux sciences humaines et sociales" (Univ. Grenoble Alpes);
- Manuel Atencia is coordinator of the "Web, Informatique et Connaissance" option of the master M2 "Mathematicques et informatiques appliquées aux sciences humaines et sociales" (Univ. Grenoble Alpes);

8.2.1.2. Lectures

- Licence: Jérôme David, Algorithmique et programmation par objets, 70h/y, L2 MIASHS, UGA, France
- Licence: Jérôme David, Système, L3 MIASHS, 18h/y, UGA, France
- Licence: Manuel Atencia, Introduction aux technologies du Web, 60h/y, L3 MIASHS, UGA, France
- Master: Jérôme David, Programmation Java 2, 30h/y, M1 MIASHS, UGA, France
- Master: Jérôme David, JavaEE, 30h/y, M2 MIASHS, UGA, France
- Master: Jérôme David, Développement Web Mobile, 30h/y, M2 MIASHS, UGA, France
- Master: Jérôme David, Web sémantique, 3h/y, M2 MIASHS, UGA, France
- Master: Manuel Atencia, Formats de données du web, 30h/y, M1 MIASHS, UGA, France
- Master: Manuel Atencia, Introduction à la programmation web, 30h/y, M1 MIASHS, UGA, France
- Master: Manuel Atencia, Intelligence artificielle, 7.5h/y, M1 MIASHS, UGA, France
- Master: Manuel Atencia, Web sémantique, 27h/y, M2 MIASHS, UGA, France
- Master: Manuel Atencia, Semantic web: from XML to OWL, 22.5h/y, M2R MoSIG, UGA, France
- Master: Jérôme David, Stage de programmation, 10h/y, M2 MIASHS, UGA, France

8.2.2. Supervision

- Nacira Abbas, "Link key extraction and relational concept analysis", in progress since 2018-10-01 (Jérôme David and Amedeo Napoli)
- Khadija Jradeh, "Reasoning with link keys", in progress since 2018-10-01 (Manuel Atencia and Chan Le Duc)
- Line van den Berg, "Knowledge Evolution in Agent Populations", in progress since 2018-10-01 (Manuel Atencia and Jérôme Euzenat)

- Yasser Bourahla, "Evolving ontologies through communication", in progress since 2019-10-01 (Manuel Atencia and Jérôme Euzenat)

8.2.3. Juries

- Jérôme Euzenat had been reviewer and panel chair of the computer science PhD of Élodie Thiéblin (Université Toulouse 3 Paul Sabatier) "Automatic generation of complex ontology alignments" supervised by Ollivier Haemmerlé and Cássia Trojahn, 2019

- Jérôme Euzenat had been member of the computer science habilitation (HDR) panel of Cássia Trojahn (Université Toulouse 2 Jean Jaurès) "Towards ontology matching maturity: contributions to complex, holistic and foundational ontology matching", 2019

8.3. Popularization

8.3.1. Interventions

- Présentation "L'intelligence artificielle en perspective", Université Inter-Âges du Dauphiné (UIAD), Grenoble (FR), 2019-03-06 (Jérôme Euzenat)

- Introduction of the *Class?* game to a fourth graders (CM1-CM2) class, Montbonnot (FR), 2019-06-25 (Line van den Berg and Jérôme Euzenat)

- Introduction of the *Class?* game to a tenth graders (2nd MathC2+) group, Montbonnot (FR), 2019-06-25 (Line van den Berg and Jérôme Euzenat)

- Introduction of the *Class?* game to seventh and eighth graders (5e et 4e) classes within the Fête de la science (Science fair), Montbonnot (FR), 2019-10-10 (Line van den Berg and Jérôme Euzenat)

- Introduction of the *Class?* game to general public within the Fête de la science (Science fair), Montbonnot (FR), 2019-10-12 (Line van den Berg and Jérôme Euzenat)

- Presentation of the *Class?* game to the meeting of the Société Francophone de Classification, Nancy (FR), 2019-09-03–04 (Jérôme Euzenat)

8.3.2. Creation of media or tools for science outreach

Class? We are developing mediation material for explaining to the general public what knowledge representation is and how it may evolve. Its main goal is to show children that the same individuals may be classified in different and evolving ways and that it is possible to communicate such classifications without expressing them. For that purpose, we have designed a card game called *Class?*[0] which allows players to guess the hidden ontology of another player. It has been presented to school classes from year 5 of primary school (fourth graders) to year 11 (tenth graders), albeit shows features of interest for a wider audience.

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[0]https://moex.inria.fr/mediation/class/

<h1 style="text-align:center; color:red;">MORPHEO Project-Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Chair of Conference Program Committees

- Stefanie Wuhrer was program co-chair of 3DV 2019, held in Québec City, Canada

10.1.1.2. Member of the Conference Program Committees

- Edmond Boyer was area chair for BMVC and ICCV 2019.

10.1.1.3. Reviewer

- Stefanie Wuhrer reviewed for CVPR, ICCV, and SIGGRAPH
- Jean-Sébastien Franco reviewed for CVPR, ICCV, and 3DV
- Edmond Boyer reviewed for CVPR.

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- Edmond Boyer is associate editor of the International Journal of Computer Vision (IJCV, Springer).

10.1.2.2. Reviewer - Reviewing Activities

- Edmond Boyer reviewed for IJCV and PAMI.
- Jean-Sébastien Franco reviewed for IJCV and Computer & Graphics.

10.1.3. Invited Talks

- Stefanie Wuhrer was invited to present at Dagstuhl seminar 19102
- Edmond Boyer gave invited talks at: ETH Zurich (February), Prague university (April), Naverlabs Grenoble (May), Lille University (June), Microsoft Zurich (October).

10.1.4. Scientific Expertise

- Jean-Sebastien Franco was a member of the Ensimag Engineering school - Grenoble INP steering commitee (Conseil d'École) in 2019.
- Jean-Sebastien Franco was a member of the recruiting commitee of Ensimag - Grenoble INP Engineering school for temporary research and teaching associates (ATER) in 2019.

10.1.5. Research Administration

- Edmond Boyer is auditor for the Computer Vision European Association.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : Sergi Pujades, Algorithmique et programmation fonctionnelle, 41H équivalent TD, L1, Université Grenoble Alpes, France.

Licence : Sergi Pujades, Modélisation des structures informatiques: aspects formels, 45H équivalent TD, L1, Université Grenoble Alpes, France.

Master : Sergi Pujades, Numerical Geometry, 15H équivalent TD, M1, Université Grenoble Alpes, France

Licence: Jean-Sébastien Franco, Introduction to Imperative Programming, 57h, Ensimag 1st year, Grenoble INP.

Licence: Jean-Sébastien Franco, C Programming project, 20h, Ensimag 3rd year, Grenoble INP.

Master: Jean-Sébastien Franco, Supervision of the 2nd year program (300 students), 36h, Ensimag 2nd year, Grenoble INP.

Master: Jean-Sébastien Franco, Introduction to Computer Graphics, 45h, Ensimag 2nd year, Grenoble INP.

Master: Jean-Sébastien Franco, Introduction to Computer Vision, 27h, Ensimag 3rd year, Grenoble INP.

Master: Jean-Sébastien Franco, End of study project tutoring (PFE), 11h, Ensimag 3rd year, Grenoble INP.

Master: Edmond Boyer, 3D Modeling, 23h, M2R Mosig GVR, Grenoble INP.

Master: Edmond Boyer, Introduction to Visual Computing, 42h, M1 MoSig, Université Grenoble Alpes.

Master: Stefanie Wuhrer, 3D Graphics, 13.5h, M1 MoSig and MSIAM, Université Grenoble Alpes.

10.2.2. Supervision

PhD: Jinlong Yang, Learning shape space of dressed human in motion, Université Grenoble Alpes (France), March 2019, Franck Hétroy-Wheeler and Stefanie Wuhrer.

PhD: Vincent Leroy, 4D shape reconstruction from photoconsistency cues, Université Grenoble Alpes, October 2019, supervised by Edmond Boyer and Jean-Sébastien Franco.

PhD in progress : Sanae Dariouche, Anatomic Statistical Models of adipose, bone and muscle tissue, 01/11/2019, Sergi Pujades and Edmond Boyer

PhD in progress : Marilyn Keller, Ribs motion models for personalized 3D printed implants, 23/09/2019, Sergi Pujades and Michael Black

PhD in progress : Di Meng, , 23/09/2019, Edmond Boyer and Sergi Pujades

PhD in progress: Matthieu Armando, Temporal Integration for Shape and Appearance Modeling, Université Grenoble Alpes (France), started 01/01/2018, supervised by Edmond Boyer and Jean-Sébastien Franco.

PhD in progress: Boyao Zhou, Augmenting User Self-Representation in VR Environments, Université Grenoble Alpes (France), started 01/02/2019, supervised by Edmond Boyer and Jean-Sébastien Franco.

PhD in progress: Victoria Fernandez Abrevaya, 3D Dynamic Human Motion Representations, Université Grenoble Alpes (France), started 01/10/2016, supervised by Edmond Boyer and Stefanie Wuhrer.

PhD in progress: Jean Basset, Learning Morphologically Plausible Pose Transfer, Université Grenoble Alpes (France), started 01/10/2018, supervised by Edmond Boyer, Franck Multon and Stefanie Wuhrer.

PhD in progress: Abdullah Haroon Rasheed, Cloth Modeling and Simulation, Université Grenoble Alpes (France), started 01/11/2017, supervised by Florence Bertails-Descoubes, Jean-Sébastien Franco and Stefanie Wuhrer.

PhD in progress: Pierre Zins, Learning to infer human motion, Université Grenoble Alpes (France), started 01/10/2019, supervised by Edmond Boyer, Tony Tung (Facebook) and Stefanie Wuhrer.

PhD in progress: Mathieu Marsot, Generative modeling of 3D human motion, Université Grenoble Alpes (France), started 01/11/2019, supervised by Jean-Sébastien Franco and Stefanie Wuhrer.

10.2.3. Juries

- Stefanie Wuhrer was jury member for the PhD defense of Alban Fichet, Université Grenoble Alpes, December 2019.

- Edmond Boyer was president of the PhD jury of Romain Rombourg, Université Grenoble Alpes, December 2019.

- Edmond Boyer was jury member for the PhD defense of Arthur Crenn, Université de Lyon, December 2019.

10.3. Popularization

10.3.1. Articles and contents

- Edmond Boyer was interviewed by the journal *Vivre à Grenoble* en février 2019. An article mentioning his work with the Kinovis platform was published in april 2019.

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Elected chair, Steering Committee of the Latent Variable Analysis and Signal Separation (LVA/ICA) conference series (E. Vincent, until Nov. 2019)

General co-chair, 1st Inria-DFKI Workshop on Artificial Intelligence, Nancy, Jan. 2020 (E. Vincent)

General co-chair, 6th CHiME Speech Separation and Recognition Challenge, May 2020 (E. Vincent)

General co-chair, 6th International Workshop on Speech Processing in Everyday Environments, Barcelona, Spain, May 2020 (E. Vincent)

General co-chair, 1st Voice Privacy Challenge, Sept. 2020 (E. Vincent)

General co-chair, Detection and Classification of Acoustic Scenes and Events Challenge (R. Serizel, since Nov. 2018)

Area chair, 2019 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA) (E. Vincent)

Area chair, 2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (E. Vincent, A. Deleforge)

10.1.1.2. Member of the Organizing Committees

Steering Committee of the Detection and Classification of Acoustic Scenes and Events (DCASE) challenge series (E. Vincent until Nov. 2019, R. Serizel from Nov. 2019)

Organizing Committee of the ASVspoof 2019 Challenge: Automatic Speaker Verification Spoofing And Countermeasures Challenge (M. Sahidullah)

Organizing Committee of Special Sessions on ASVspoof 2019 at INTERSPEECH 2019 and at IEEE ASRU 2019 (M. Sahidullah).

Organizing Committee of AVSP 2019 (S. Ouni)

Main organizer of IEEE Signal Processing Cup 2019 on Search & Rescue with Drone-Embedded Sound Source Localization (A. Deleforge).

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

Review chair, IEEE Technical Committee on Audio and Acoustic Signal Processing, responsible for organizing the review of the 443 papers submitted to the 2019 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) in the general AASP domain (E. Vincent)

10.1.2.2. Member of the Conference Program Committees

ICALP 2019 - International Conference on Arabic Language Processing (D. Jouvet)

SIIE 2019 - Edition of the International Conference on Information Systems and Economic Intelligence (D. Fohr, I. Illina)

SPECOM 2019 - International Conference on Speech and Computer (D. Jouvet)

TSD 2019 - International Conference Text, Speech and Dialogue (D. Jouvet)

10.1.2.3. Reviewer

ASRU 2019 - IEEE Automatic Speech Recognition and Understanding Workshop (D. Jouvet, I. Illina, S. Ouni, M. Sahidullah, E. Vincent)

AVSP 2019 - International Conference on Auditory-Visual Speech Processing (S. Ouni)

DCASE 2019 - Workshop on Detection and Classification of Acoustic Scenes and Events (R. Serizel, E. Vincent)

ECML PKDD Joint International Workshop on Advances in Interpretable Machine Learning and Artificial Intelligence & eXplainable Knowledge Discovery in Data Mining (E. Vincent)

EUSIPCO 2019 - European Signal Processing Conference (M. Sahidullah)

ICALP 2019 - International Conference on Arabic Language Processing (D. Jouvet)

ICASSP 2020 - IEEE International Conference on Acoustics, Speech and Signal Processing (A. Bonneau, A. Deleforge, D. Jouvet, M. Sahidullah, R. Serizel, E. Vincent)

ICPhS 2019 - International Congress of Phonetic Sciences (A. Bonneau, Y. Laprie)

INTERSPEECH 2019 (A. Bonneau, I. Illina, D. Jouvet, S. Ouni, M. Sahidullah, E. Vincent)

IROS 2019 - International Conference on Intelligent Robots and Systems (A. Deleforge)

IVA 2019 - Intelligent Virtual Agents Conference (S. Ouni)

NeurIPS 2019 - Conference on Neural Information Processing Systems (A. Deleforge)

PaPE 2019 - Phonetics and Phonology in Europe conference (A. Bonneau)

SLATE 2019 - Workshop on Speech and Language Technology in Education (A. Bonneau, D. Jouvet)

SPECOM 2019 - International Conference on Speech and Computer (D. Jouvet)

TSD 2019 - International Conference Text, Speech and Dialogue (D. Jouvet)

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Speech Communication (D. Jouvet)

Journal on Audio, Speech, and Music Processing (Y. Laprie)

Associate Editor of Circuits, Systems, and Signal Processing (M. Sahidullah)

Associate Editor of IET Signal Processing (M. Sahidullah)

Guest Editor of Computer Speech and Language, Special issue on Advances in Automatic Speaker Verification Anti-spoofing (M. Sahidullah)

Guest Editor of Journal on Audio, Speech and Music Processing, special issue on Advances in Audio Signal Processing for Robots and Drones (A. Deleforge)

10.1.3.2. Reviewer - Reviewing Activities

Computer Speech and Language (A. Deleforge, D. Jouvet, M. Sahidullah)

IEEE Access (A. Deleforge)

IEEE Signal Processing Letters (A. Deleforge, M. Sahidullah)

IEEE Transactions on Audio, Speech and Language Processing (M. Sahidullah, A. Deleforge)

IEEE Transactions on Biometrics, Behavior, and Identity Science (M. Sahidullah)

IEEE Transactions on Cognitive and Developmental Systems (A. Deleforge)

IEEE Transactions on Information Forensics and Security (M. Sahidullah)

IEEE Transactions on Signal Processing (A. Deleforge)

IET Biometrics (M. Sahidullah)

JASA Express Letter (Y. Laprie, S. Ouni)

Journal of the Acoustical Society of America (Y. Laprie)

Journal of Language, Speech and Hearing Research (Y. Laprie)

Journal on Audio, Speech, and Music Processing (A. Deleforge)

Sensors (A. Deleforge)

Speech Communication (D. Jouvet)

10.1.4. Invited Talks

Keynote "Grands défis scientifiques et technologiques en traitement de la parole: quelles initiatives chez Inria et au niveau européen?", Voice Tech Paris 2019 (E. Vincent) [18]

Keynote "Speech Processing and Prosody", 22nd International Conference of Text, Speech and Dialogue (TSD 2019) (D. Jouvet) [15]

"COMPRISE", META-FORUM 2019 (E. Vincent) [17]

Lecture "Taking the Best of Physics and Machine Learning in Robot Audition", IEEE/EURASIP/ISIF 2019 Summer School of Signal Processing, Arenzano, Italy (A. Deleforge)

Language pathology, Séminaire "Dépistage des troubles des apprentissages" in EHESP, Rennes, Jan. 2019 (A. Piquard-Kipffer)

"Dyslexie, dysorthographie : quels parcours scolaires ? Quelles rémédiations et adapatations ?" in Journée nationale des Dys, Bavilliers, Oct. 2019 (A. Piquard-Kipffer)

10.1.5. Leadership within the Scientific Community

Secretary/Treasurer, executive member of AVISA (Auditory-VIsual Speech Association), an ISCA Special Interest Group (S. Ouni)

Member of the board of AFCP - Association Francophone de la Communication Parlée (S. Ouni)

Elected members of the IEEE Technical committee on Audio and Acoustic Signal Processing (A. Deleforge, R. Serizel).

10.1.6. Scientific Expertise

Member of the Scientific Committee of an Institute for deaf people (INJS-Metz), A. Piquard-Kipffer

Member of an expertise Committee for specific language disabilities (MDPH 54), A. Piquard-Kipffer

10.1.7. Research Administration

Head of the AM2I Scientific Pole of Université de Lorraine (Y. Laprie)

Deputy Head of Science of Inria Nancy - Grand Est (E. Vincent)

Member of Management board of Université de Lorraine (Y. Laprie)

Member of the Comité Espace Transfert of Inria Nancy - Grand Est (E. Vincent)

Member of the national recruitment jury for Inria Junior Research Scientists (E. Vincent)

Member of the recruitment jury for Junior Research Scientists, Inria Paris (E. Vincent)

Member of a recruitment committee for Assistant Professor at Université Paris-Sud, May 2019 (D. Jouvet)

Member of the recruitment jury for an Associate Professor position, University of Lorraine (R. Serizel)

Member of the HCERES committee for Gipsa-Lab (S. Ouni)

Member of the National Council of Universities - CNU 27 (S. Ouni)

Member of "Commission paritaire" of Université de Lorraine (Y. Laprie)

Member of the Commission de développement technologique of Inria Nancy - Grand Est (R. Serizel)

Member of the Commission du personnel scientifique of Inria Nancy - Grand Est (R. Serizel)

Member of the Bureau de la Commission de Mention Informatique (I. Illina, S. Ouni)

Animator of the Commission Locale Développement Durable of Inria Nancy - Grand Est (A. Deleforge)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

DUT: I. Illina, Java programming (56 hours), Linux programming (58 hours), and Advanced Java programming (40 hours), L1, University of Lorraine, France

DUT: I. Illina, Supervision of student projects and internships (50 hours), L2, University of Lorraine, France

DUT: R. Serizel, Introduction to office tools (108 hours), Multimedia and web (20 hours), Documents and databases (20 hours), L1, University of Lorraine, France

DUT: R. Serizel, Multimedia content and indexing (14 hours), Content indexing and retrieval software (20 hours), L2, University of Lorraine, France

DUT: S. Ouni, Programming in Java (24 hours), Web Programming (24 hours), Graphical User Interface (96 hours), L1, University of Lorraine, France

DUT: S. Ouni, Advanced Algorihms (24 hours), L2, University of Lorraine, France

Licence: A. Bonneau, Speech manipulations (2 hours), L1, Département d'orthophonie, University of Lorraine, France

Licence: A. Bonneau, Phonetics (17 hours), L2, École d'audioprothèse, University of Lorraine, France

Licence: V. Colotte, Digital literacy and tools (hybrid courses, 50 hours), L1, University of Lorraine, France

Licence: V. Colotte, System (45 hours), L3, University of Lorraine, France

Licence: O. Mella, Introduction to Web Programming (22 hours), Digital tools (20 hours), L1, University of Lorraine, France

Licence: O. Mella, Computer Networking (72 hours), L2-L3, University of Lorraine, France

Licence: A. Piquard-Kipffer, Education Science (32 hours), L1, Département d'orthophonie, University of Lorraine, France

Licence: A. Piquard-Kipffer, Learning to Read (34 hours), L2, Département d'orthophonie, University of Lorraine, France

Licence: A. Piquard-Kipffer, Dyslexia, Dysorthographia (12 hours), L3, Département d'orthophonie, University of Lorraine, France

Master: V. Colotte, Introduction to Speech Analysis and Recognition (18 hours), M1, University of Lorraine, France

Master: V. Colotte, Integration project: multimodal interaction with Pepper (10 hours), M2, University of Lorraine, France

Master: D. Jouvet and S. Ouni, Multimodal oral comunication (24 hours), M2, University of Lorraine

Master: Y. Laprie, Speech corpora (30 hours), M1, University of Lorraine, France

Master: O. Mella, Computer Networking (67 hours), Introduction to Speech Analysis and Recognition (12 hours), M1, University of Lorraine, France

Master: S. Ouni, Multimedia in Distributed Information Systems (31 hours), M2, University of Lorraine

Master: A. Piquard-Kipffer, Dyslexia, Dysorthographia diagnosis (9 hours), Deaf people & reading (21 hours), M1, Département d'orthophonie, University of Lorraine, France

Master: A. Piquard-Kipffer , Psycholinguistics (20 hours), Departement Orthophonie, University Pierre et Marie Curie, Paris, France

Master: A. Piquard-Kipffer, French Language Didactics (53 hours), ESPE, INSPE University of Lorraine, France

Master: A. Piquard-Kipffer, Psychology (6 hours), M2, Departement of Psychology, University of Lorraine, France

Master: R. Serizel, Introduction to machine listening (3 hours), M2, University of Lorraine

Master: R. Serizel and S. Ouni, Oral speech processing (24 hours), M2, University of Lorraine

Master: E. Vincent and A. Kulkarni, Neural networks (38 hours), M2, University of Lorraine

Continuous training: O. Mella, DIU "Teaching computer science in high school" (7 hours), Computer science courses for secondary school teachers (ISN courses, 21 hours), ESPE, University of Lorraine, France

Continuous training: A. Piquard-Kipffer, Special Educational Needs (53 hours), ESPE, INSPE, University of Lorraine, France

Other: V. Colotte, Co-Responsible for NUMOC (Digital literacy by hybrid courses) for the University of Lorraine, France (for 7000 students)

Doctorat: A. Piquard-Kipffer , Language Pathology (20 hours), EHESP, University of Sorbonne, Paris, France

10.2.2. Supervision

PhD: Mathieu Fontaine, "Processus alpha-stable pour le traitement du signal", University of Lorraine, Jun. 12, 2019, A. Liutkus and R. Badeau (Télécom ParisTech) [1].

PhD: Lauréline Perotin, "Localisation et rehaussement de sources de parole au format Ambisonique", University of Lorraine, Oct. 31, 2019, R. Serizel, E. Vincent, and A. Guérin (Orange) [2].

PhD: Anastasiia Tsukanova, "Coarticulation modeling in articulatory synthesis", University of Lorraine, Dec. 13, 2019, Y. Laprie .

PhD in progress: Amal Houidhek, "Synthèse paramétrique de parole arabe", Dec. 2015, cotutelle, V. Colotte, D. Jouvet and Z. Mnasri (ENIT, Tunisia).

PhD in progress: Amine Menacer, "Traduction automatique de vidéos", May 2016, K. Smaïli (LORIA) and D. Jouvet.

PhD in progress: Nathan Libermann, "Deep learning for musical structure analysis and generation", Oct. 2016, F. Bimbot (IRISA) and E. Vincent.

PhD in progress: Théo Biasutto, "Multimodal coarticulation modeling: Towards the animation of an intelligible speaking head", Dec. 2016, S. Ouni.

PhD in progress: Sara Dahmani, "Modeling facial expressions to animate a realistic 3D virtual talking head", Jan. 2017, S. Ouni and V. Colotte.

PhD in progress: Guillaume Carbajal, "Apprentissage profond bout-en-bout pour le rehaussement de la parole", Mar. 2017, R. Serizel, E. Vincent and É. Humbert (Invoxia).

PhD in progress: Sunit Sivasankaran, "Exploiting contextual information in the speech processing chain", Jul. 2017, D. Fohr and E. Vincent.

PhD in progress: Ioannis Douros, "Combining cineMRI and static MRI to analyze speech production", Jul. 2017, P.-A. Vuissoz (IADI) and Y. Laprie.

PhD in progress: Diego Di Carlo, "Estimating the Geometry of Audio Scenes Using Virtually-Supervised Learning", Oct. 2017, A. Deleforge and N. Bertin (Inria Rennes).

PhD in progress: Lou Lee, "Du lexique au discours: les particules discursives en français", Oct. 2017, Y. Keromnes (ATILF) and D. Jouvet.

PhD in progress: Nicolas Turpault, "Deep learning for sound scene analysis in real environments", Jan. 2018, R. Serizel and E. Vincent.

PhD in progress: Raphaël Duroselle, "Adaptation de domaine par réseaux de neurones appliquée au traitement de la parole", Sept. 2018, D. Jouvet and I. Illina.

PhD in progress: Nicolas Furnon, "Deep-learning based speech enhancement with ad-hoc microphone arrays", Oct. 2018, R. Serizel, I. Illina and S. Essid (Télécom ParisTech).

PhD in progress: Ajinkya Kulkarni, "Synthèse de parole expressive par apprentissage profond", Oct. 2018, V. Colotte and D. Jouvet.

PhD in progress: Manuel Pariente, "Deep learning-based phase-aware audio signal modeling and estimation", Oct. 2018, A. Deleforge and E. Vincent.

PhD in progress: Adrien Dufraux, "Leveraging noisy, incomplete, or implicit labels for automatic speech recognition", Nov. 2018, E. Vincent, A. Brun (LORIA) and M. Douze (Facebook AI Research).

PhD in progress: Ashwin Geet D'Sa, "Natural Language Processing: Online hate speech against migrants", Apr. 2019, I. Illina and D. Fohr.

PhD in progress: Tulika Bose, "Online hate speech and topic classification", Sep. 2019, I. Illina, D. Fohr and A. Monnier (CREM).

PhD in progress: Mauricio Michel Olvera Zambrano, "Robust audio event detection", Oct. 2019, E. Vincent and G. Gasso (LITIS).

PhD in progress: Shakeel Ahmad Sheikh, "Identifying disfluency in speakers with stuttering, and its rehabilitation, using DNN", Oct. 2019, S. Ouni.

PhD in progress: Sandipana Dowerah, "Robust speaker verification from far-field speech", Oct. 2019, D. Jouvet and R. Serizel.

PhD in progress: Georgios Zervakis, "Integration of symbolic knowledge into deep learning", Nov. 2019, M. Couceiro (LORIA) and E. Vincent.

PhD in progress: Nicolas Zampieri, "Automatic classification using deep learning of hate speech posted on the Internet", Nov. 2019, I. Illina and D. Fohr.

10.2.3. Juries

10.2.3.1. Participation in HDR and PhD juries

Participation in the HDR jury of Fabrice Hirsch (Sorbonne nouvelle University, Nov. 2019), Y. Laprie.

Participation in the HDR jury of Éric Bavu (CNAM, Dec. 2019), E. Vincent, president.

Participation in the PhD jury of Corentin Louboutin (Bretagne Loire University, Mar. 2019), E. Vincent, president.

Participation in the PhD jury of Neil Zeghidour (PSL Research University, Mar. 2019), E. Vincent, reviewer and president.

Participation in the PhD jury of Zied Elloumi (Communauté Université Grenoble Alpes, Mar. 2019), D. Jouvet, reviewer.

Participation in the PhD jury of Céline Jacques (Sorbonne University, Apr. 2019), E. Vincent.

Participation in the PhD jury of João Felipe Santos (University of Québec, Jul. 2019), E. Vincent, reviewer.

Participation in the PhD jury of Alice Cohen-Hadria (Sorbonne University, Oct. 2019), E. Vincent, reviewer.

Participation in the PhD jury of Lode Vuegen (KU Leuven, Oct. 2019), R. Serizel.

Participation in the PhD jury of Anne Bouvet (Grenoble Alpes University, Nov. 2019), Y. Laprie.

Participation in the Phd jury of Kevin Vythelingum (Le Mans Université, Dec. 2019), D. Jouvet, reviewer.

Participation in the PhD jury of Karima Abidi (Univertsité de Lorraine, Dec. 2019), D. Jouvet, president.

10.2.3.2. Participation in other juries

Participation in CAFIPEMPF Jury - Master Learning Facilitator, Académie de Nancy-Metz & Université de Lorraine, Apr. & May 2019, A. Piquard-Kipffer

Participation in the Competitive Entrance Examination into Speech-Language Pathology Department, University of Lorraine, Jun. 2019, A. Piquard-Kipffer.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Member of the Commission Information et Edition Scientifique of Inria Nancy (A. Deleforge).

10.3.2. Articles and contents

Interview for "Un assistant vocal qui protège les données", *France 3 Grand Est*, Jun. 7, 2019 (E. Vincent)

Interview for "La voix crescendo", *L'Usine Nouvelle*, Jun. 27, 2019 (E. Vincent)

Interview for "On transmet beaucoup plus d'informations par la voix qu'un message", *Rue89 Strasbourg*, Nov. 20, 2019 (E. Vincent)

Participation to the white paper "AI in the media and creative industries", New European Media (NEM) consortium (E. Vincent) [52]

10.3.3. Education

5 interventions (3 hours) : "Dyslexic pupils in mainstream and special education". Training of trainers. ESPE de l'Académie de Nancy-Metz. Feb., Mar. & May 2019 (A. Piquard-Kipffer)

10.3.4. Interventions

6 interventions (1 hour) on robot audition and artificial intelligence research in classes from 5th (*CM2*) to 12th (*terminale*) grade around Nancy, Jan. 2019 (A. Deleforge)

Talk "Parole & deep learning: succès et grands défis", Journée IA, Langage et Citoyens, LORIA, Mar. 2019; and also at Meetup IA Nancy, Jun. 2019 (E. Vincent)

Panel discussion on "Se positionner à l'Europe, une opportunité à saisir", General assembly of Pôle Materalia, Nancy, Apr. 2019 (E. Vincent)

Demos and talk "Aider des enfants ayant des troubles du langage, quels métiers ? Quels outils ?" Forum des métiers, Collège Péguy, Le Chesnay, Apr. 2019 (A. Piquard-Kipffer)

4 interventions (1 hour) on robot audition and artificial intelligence research in high-school classes in Serbia, Sep. 2019 (A. Deleforge)

Demo "Apprendre aux robots à nous entendre" at the "Nuit des Chercheurs" of Belgrade, Serbia in Sept. 2019 and of Nancy for the 80th anniversary of CNRS in Oct. 2019 (A. Deleforge)

Demos "Apprendre aux robots à nous entendre" and "Assistants vocaux et vie privée", Fête de la Science, Université de Lorraine, Oct. 2019 (A. Deleforge, I. Illina, M. Sahidullah, B. M. L. Srivastava, E. Vincent)

Panel discussion "Tous connectés et après : les enjeux des applications d'interactions vocales", Shadok, Strasbourg, Nov. 2019 (E. Vincent)

10.3.5. Internal action

"H2020 COMPRISE", Internal "Café'In" event, Inria Nancy, Jun. 2019 (E. Vincent & Z. Chelly-Dagdia)

10.3.6. Creation of media or tools for science outreach

Video "Exposed by your own voice", https://www.youtube.com/watch?v=gm2cC8za8Us.

Video 'When voice assistants don't understand", https://www.youtube.com/watch?v=-HvADcfEOuE.

Video "Why is voice assistant integration so expensive", https://www.youtube.com/watch?v=5LQb9X3RtUs

<div align="center">

ORPAILLEUR Project-Team

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10. Dissemination

10.1. Scientific Events Organization, General Chairs, Scientific Chairs

- Amedeo Napoli was the scientific co-chair with Sergei Kuznetsov of the track "General Topics of Data Analysis" at the AIST Conference held in Kazan Russia on July 17-19 2019 (8th International Conference on Analysis of Images, Social Networks, and Texts http://aistconf.org/ and http://aistconf.org/board/).

- Amedeo Napoli was the scientific co-chair with Sergei O. Kuznetsov (HSE Moscow) and Sebastian Rudolph (TU Dresden) of the seventh workshop FCA4AI "What can do FCA for Artificial Intelligence", which was co-located with the IJCAI Conference in Macao China, August 10 2019 (see http://www.fca4ai.hse.ru/).

- Miguel Couceiro and Amedeo Napoli were the general and scientific chairs of the 26ièmes Rencontres de la Société Francophone de Classification (SFC 2019) that were held on September 3-5 at Inria NGE/LORIA Nancy (see https://project.inria.fr/sfc2019/).

10.2. Scientific Animation

- The scientific animation in the Orpailleur team is based on the Team Seminar which is called the "Malotec" seminar (http://malotec.loria.fr/). The Malotec seminar is held in general twice a month and is used either for general presentations of members of the team or for invited presentations of external researchers.

- Members of the Orpailleur team are all involved, as members or as head persons, in various national research groups.

- The members of the Orpailleur team are involved in the organization of conferences and workshops, as members of conference program committees (AAAI, ECAI, ECML-PKDD, ESWC, ICCBR, ICDM, ICFCA, IJCAI, ISWC, KDD, SDM...), as members of editorial boards, and finally in the organization of journal special issues.

10.3. Teaching - Supervision - Juries

10.3.1. Teaching

- All the permanent members of the Orpailleur team are involved in teaching at all levels and mainly at Université de Lorraine. Actually, most of the members of the Orpailleur team are employed on "Université de Lorraine" positions.

- Responsability of the 2nd year of the NLP Master's program in the IDMC, Université de Lorraine.

- Local coordination of the European Erasmus Mundus Master's program LCT (Language and Communication Technologies).

  The LCT Master's program "Language and communication Technologies" (LCT) is designed to provide students with practice–oriented knowledge in computational and theoretical linguistics, natural language processing, and computer science, to meet the demands of industry and research in these rapidly growing areas. The LCT consortium includes 7 European Universities, i.e. Saarland, Lorraine, Trento, Malta, Groningen, Charles in Prague, Basque Country, and includes several partners, e.g., DFKI, IBM (Czech Rep.), VICOMTECH, Sony (Europe), IBM (Ireland), and Inria (France).

- Responsability in teaching courses about Artificial Intelligence and Knowledge-Based Systems at TELECOM Nancy, a engineer school for graduation in computer science at Université de Lorraine.

10.3.2. Supervision – Juries

- The members of the Orpailleur team are also involved in student supervision, at all university levels, from under-graduate until post-graduate students, engineers, PhD, postdoc students.
- Finally, the permanent members of the Orpailleur team are involved in HDR and thesis defenses, being thesis referees or thesis committee members.

<p style="text-align:center">**PANAMA Project-Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

- Nancy Bertin, event coordinator of the 2019 Science and Music Day (Journée Science et Musique) organized by IRISA *(with Claire Cury from EMPENN project-team.)*
- Nancy Bertin, member of the LVA/ICA conference steering committee.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Nancy Bertin, coordinator of the Science and Music Young Researcher Award (Prix Jeune Chercheur Science et Musique).
- Rémi Gribonval and Frédéric Bimbot, scientific coordinators of the Science and Music Day (Journée Science et Musique) organized by IRISA.

9.1.2.2. Member of Conference Program Committees

- Rémi Gribonval, member of the program committee of the GRETSI.

9.1.3. Membership of Editorial Boards

- Frédéric Bimbot, Editor-in-Chief of the international journal *Speech Communication*.
- Rémi Gribonval, Associate Editor of the international journal *Constructive Approximation*.
- Rémi Gribonval, Senior Area Editor of the *IEEE Transactions on Signal Processing*.
- Nancy Bertin, Guest Editor of a special issue in the international journal *IEEE Journal of Selected Topics in Signal Processing*.

9.1.4. Invited Talks

- Jérémy Cohen, invited speaker at workshop "Low Rank Optimization and Applications" (Max Plank Institute for the Mathematics in the Sciences, Leipzig, Germany, April 2019) [0]
- Jérémy Cohen, invited speaker at workshop "AI and Tensor Factorizations" (Santa Fe, USA, September 2019)
- Rémi Gribonval, keynote at SampTA 2019 (Sampling Theory and Applications) in Bordeaux, France.
- Rémi Gribonval, tutorial at Summer School "Sparsity for Physics, Signal and Learning", Inria Paris, June 2019
- Rémi Gribonval, invited talk at 4TU meeting on "Mathematics of Deep Learning", Delft University, Nov 2019
- Rémi Gribonval, invited talk at Alan Turing Institute on "Mathematics of Data", London, May 2019
- Rémi Gribonval, invited talk at GDR ISIS meeting on "Theory of Deep Learning", Paris, OCt 2019
- Rémi Gribonval, panel session on "Signal processing and AI" at GRETSI 2019, Lille, Aug 2019

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[0]https://www.mis.mpg.de/calendar/conferences/2019/lroa2019.html

9.1.5. Scientific Expertise

- Rémi Gribonval, vice-president of the Scientific Advisory Board of the Acoustics Research Institute from the Austrian Academy of Sciences in Vienna.
- Frédéric Bimbot, member of the International Advisory Council of ISCA (International Speech Communication Association).
- Frédéric Bimbot, member of the ANR Expert Scientific Committee n°38, dedicated to the Digital Revolution and its relations to Knowledge and Culture.
- Rémi Gribonval, member of the EURASIP Special Area Team (SAT) on Signal and Data Analytics for Machine Learning (SiG-DML) since 2015.

9.1.6. Research Administration

- Frédéric Bimbot, board member of the GDR MADICS
- Rémi Gribonval, member of the organization committee of the 2019 GDR ISIS / GRETSI / Club EAA thesis prize in signal and image processing.
- Nancy Bertin, elected member of the "Comité de Centre" at Inria Rennes Bretagne Atlantique research center.
- Nancy Bertin, coordinator of IRISA "Arts, Heritage and Culture crosscutting axis" *(with Valérie Gouranton, HYBRID project-team.)*

9.2. Teaching

Master : N. Bertin, coordination of the VAI module "Vocal and Acoustic Interactions" within the SIF M2, 20 hours, Université de Rennes 1, France

Master : N. Bertin, "Vocal and Audio Interactions", 4 hours, M2, Université Rennes 1, France.

Master : N. Bertin, "Fundamentals of Signal Processing", 24 hours, M1, Ecole Normale Supérieure (ENS) de Bretagne, Rennes, France.

Master : N. Bertin, "Foundations of Smart Sensing", 9 hours, M2, Ecole Nationale de la Statistique et de l'Analyse de l'Information (ENSAI), Rennes, France.

Master : N. Bertin, "Sparsity in Signal and Image Processing", 12 hours, M2, Institut National des Sciences Appliquées (INSA) de Rennes, France.

Master : R. Gribonval, "High dimensional statistical learning", 12 hours, M2, Université Rennes 1, France.

Master: R. Gribonval, coordination of the HDL module "High dimensional statistical learning" within the SIF M2, 20 hours, Université Rennes 1, France.

Master : R. Gribonval, "Sparsity in Signal and Image Processing", 8 hours, M2, Institut National des Sciences Appliquées (INSA) de Rennes, France.

Master : R. Gribonval, coordination of the module "Sparsity in Signal and Image Processing", 48 hours, M2, Institut National des Sciences Appliquées (INSA) de Rennes, France.

Master : J. Cohen, "Parcimony", 9 hours, ENSAI / "Smart Sensing" course

Master : J. Cohen, "Sparsity in Signal and Image Processing", 19 hours, M2, Institut National des Sciences Appliquées (INSA) de Rennes, France

9.3. Popularization

9.3.1. Journée Science et Musique (JSM 2019)

Participants: Nancy Bertin, Rémi Gribonval, Nancy Bertin, Frédéric Bimbot, Ewen Camberlein, Stéphanie Gosselin-Lemaile, Corentin Louboutin, Antoine Chatalic, Clément Gaultier, Cássio Fraga Dantas, Diego Di Carlo.

with contributions and support from: Claire Cury, Elisabeth Lebret, Valérie Gouranton, Ronan Gaugne, Florian Nouviale, Evelyne Orain, Agnès Cottais, Catherine Jacques-Orban and many more.

PANAMA coordinated the organization of a public event called "Journée Science et Musique" ("Music and Science Day"). This yearly event organized by the METISS/ PANAMA Team since 2011 aims at sharing with the wide audience the latest innovations and research projects in music. The motivation for hosting this event is to explain and promote the technology behind audio-processing that people face in their daily lives. The event is free to everyone and people have the possibility to attend talks by selected speakers or meet numerous experts that demonstrate current projects in which people can interactively participate. Edition 2019 hosted approximately 300 visitors and was a partner of the "Festival des Sciences" and an official event of CNRS 80th birthday celebrations.

9.3.2. Participation to Equinoxes#1

Frédéric Bimbot gave a popularization conference at the **Equinoxes#1** event, organised by Artoutaï (13 October 2019), on "the mysterious spectrum of sound" (4 times during the day)

9.3.3. Internal or external responsibilities

Frédéric Bimbot is a member of a working group of the CNRS/DR17 on the topic "changer le regard sur le handicap au travail"

PERCEPTION Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. Member of the Organizing Committees

Xavier Alameda-Pineda

- 10th International Workshop on Human Behavior Understanding, in conjunction with the 2019 International Conference on Computer Vision (ICCV).
- 1st Workshop on Fairness, Accountability and Transparency in Multimedia, in conjunction with the 2019 ACM International Conference on Multimedia (ACM MM).
- 3rd Workshop on Understanding Subjective Properties of Data, Focus on Fashion and Subjective Search, in conjunction with the 2019 International Conference on Computer Vision and Pattern Recognition (CVPR).

8.1.2. Scientific Events: Selection

8.1.2.1. Member of the Conference Program Committees

- Area Chair of the 2019 ACM International Conference on Multimedia (ACM MM).
- Area Chair of the 2019 International Conference on Image Analysis and Processing (ICIAP).

8.1.2.2. Reviewer

Xavier Alameda-Pineda: CVPR 2019, NeurIPS 2019, ICCV 2019, ACII 2019, ICLR 2019, ICML 2019, ICIP 2019.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

Xavier Alameda-Pineda is Associated Editor of the ACM Transactions on Multimedia Computing Communications and Applications

8.1.3.2. Reviewer - Reviewing Activities

Xavier Alameda-Pineda: TPAMI, TASLP, TMM.

8.1.4. Invited Talks

Xavier Alameda-Pineda:

- Significancy & Robustness in Deep Regression (July 2019) at University of Trento
- Probabilistic and deep methods for human behavior understanding (July 2019) at Media Integration and Communication Center

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master : Xavier Alameda-Pineda, Fundamentals of Probabilistic Data Mining, 18h, M2, UGA, France.

Master : Xavier Alameda-Pineda, Category Learning and Object Recognition, 11h, M2, UGA, France.

Master : Xavier Alameda-Pineda, Advanced Learning Models, 13.5h, M2, UGA, France.

8.2.2. Supervision

PhD: Yutong Ban, Audio-visual multiple-speaker tracking for robot perception [36], Université Grenoble Alpes, May 2019, Xavier Alameda-Pineda and Radu Horaud,

PhD in progress: Guillaume Delorme, Deep Person Re-identification, October 2017, Xavier Alameda-Pineda and Radu Horaud,

PhD in progress: Yihong Xu, Deep Multiple-person Tracking, October 2018, Xavier Alameda-Pineda and Radu Horaud,

PhD in progress: Wen Guo, Deep Human Pose, October 2019, Xavier Alameda-Pineda and Radu Horaud,

PhD in progress: Anand Ballou, Deep Reinforcement Learning for Robot Control, November 2019, Xavier Alameda-Pineda and Radu Horaud,

PhD in progress: Louis Airale, Data Generation for Deep Multimodal Interaction Algorithms, October 2019, Xavier Alameda-Pineda and Dominique Vaufreydaz,

PhD in progress: Xiaoyu Bie, Deep Generative Methods for Audio and Vision, December 2019, Xavier Alameda-Pineda and Laurent Girin.

8.2.3. Juries

Xavier Alameda-Pineda belonged to the following PhD Juries as "examinateur":

- Yutong Ban (University Grenoble-Alpes)
- Irtiza Hasan (University of Verona)
- Theodoros Tsesmelis (University of Verona)

<h1 style="color:red; text-align:center">PERVASIVE Project-Team</h1>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

Eric Castelli Co-organised the workshop BREVES (Vietnam, France Belgique), in Hanoi the 5 and 6 november 2019

Sabine Coquilart served as co-chair of the Paper Award committee for IEEE VR 2019 - IEEE Virtual Reality Conference

Sabine Coquilart served as co-chair of the Paper Award committee for SUI 2019 - ACM Spatial User Interaction

James Crowley served as Chairman of the Awards committee for ACM ICMI 2019 - International Conference on Multimodal Interaction.

Eric Castelli served as "board member" of the international conference series SLTU'xx (Spoken Language Technologies for Under-resourced languages)

9.1.1.2. Member of the Conference Program Committees

Sabine Coquilart served on the conference program committee for

- AIVR 2019 - International Conference on Artificial Intelligence and Virtual Reality
- CENTRIC 2019 - The Twelfth International Conference on Advances in Human-oriented and Personalized Mechanisms, Technologies, and Services
- GRAPP 2019 - International Conference on Computer Graphics Theory and Applications
- ICGI 2019 - International Conference on Graphics and Interaction
- ISVC 2019 - International Symposium on Visual Computing
- VRST 2019 - ACM Symposium on Virtual Reality Software and Technology
- WSCG 2019 - International Conferences in Central Europe on Computer Graphics, Visualization and Computer Vision

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

Sabine Coquilart served as co-chair for the paper selection panel for IEEE VR 2019

Sabine Coquilart served as co-chair for the paper selection panel for SUI 2019

9.1.2.2. Reviewer

Sabine Coquilart reviewed papers IEEE World Haptics 2019

Thierry Fraichard reviewed papers IEEE ICRA 2019

James Crowley served as a reviewer for

- ICCV 2019 - International Conference on Computer Vision
- CVPR 2019 - IEEE Conference on Computer Vision and Pattern Recognition
- AAAI 2020 - Association for the Advancement of Artificial Intelligence
- iCMI 2019 - International Conference on Multimodal Interaction.
- IHM 2019 - Interaction Homme Machine

Eric Castelli served as a reviewer for

- SigTelCom 2019 (Hanoi, Vietnam)
- ICVES 2019 (Cairo, Egypt)
- ISEE2019 (Ho Chi Minh City, Vietnam)
- SPECOM 2019 (Istanbul, Turkey)
- SCS'19 (Kingdom of Bahrain)
- ATC2019 (Hanoi, Vietnam)
- ICMSAO2019 (Bahrain)
- IALP2019 (Taipei, Taiwan)
- SoICT 2019 (Hanoi & HaLong Bay, Vietnam)
- 3ICT'19 (Kingdom of Bahrain)
- NICS 2019 (Hanoi, Vietnam)
- FLAIRS'33 2020 (North Miami Beach, USA)
- ICWMC 2020 (Athens, Greece)
- LREC 2020 (Marseille, France)
- MAPR 2020 (Hanoi, Vietnam)

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards
Patrick Reignier is a member of the editorial board of the Modeling and Using Context Journal.
Sabine Coquilart is a member of the Scientific Committee of the Journal of Virtual Reality and Broadcasting.

9.1.3.2. Reviewer - Reviewing Activities
Sabine Coquilart reviewed papers for IEEE Transactions on Haptics
Thierry Fraichard reviewed papers for IEEE Trans. Robotics and Automation (TRO)
James Crowley reviewed papers for Communications of the ACM

9.1.4. Invited Talks

James Crowley gave the following invited talks:

- **Artificial Intelligence: a Rupture Technology for Innovation**, invited lecture at Club des DIS, Dirigeants Innovation et Stratégie, Montbonnot, 14 March 2019.
- **Collaborative Intelligent Systems**, invited lecture at Simula Research Institute, Oslo Norway, Montbonnot, 27 September 2019.
- **Artificial Intelligence: a Rupture Technology for Innovation**, AI4EU Web Cafe (webinar), 13 November 2019
- **Artificial Intelligence for Human Computer Interaction**, Keynote lecture at IHM 2019, Grenoble 12 Dec 2019.

Eric Castelli gave the invited talk

- **Multimodal perception and Pervasive spaces for Sociable interaction** International workshop BREVES, USTH, Hanoi, Vietnam, 5 and 6 November 2019.

9.1.5. Leadership within the Scientific Community
Sabine Coquilart is elected member of the EUROGRAPHICS Executive Committee.
Sabine Coquilart is co-chair of the EUROGRAPHICS Working Group and Workshop board.
Sabine Coquilart is co-chair of the Steering Committee for EGVE - Eurographics Working Group on Virtual Environments
James Crowley is a member of the Steering Committee for ICMI - International Conference on Multimodal Interaction.

9.1.6. Scientific Expertise

Patrick Reignier is a member of the Scientific Council of the Amiqual4Home EquipEx.

Thierry Fraichard served as an expert reviewer for the European Commission, the IDEX of Aix-Marseille Université, and the IDEX of Université Grenoble Alpes

9.1.7. Research Administration

Thierry Fraichard is a member of the following Inria committees:

- Research Center Committee (CC), IT Service Committee (CUMI), and Technological Development Committee (CDT).

James Crowley is an elected member of the Conseil d'Administration of the Comue Univ Grenoble Alpes

James Crowley Served on the Bureau (executive committee) of the laboratoire LIG

Patrick Reignier is head of the engineering support group of the Laboratoire d'Informatique de Grenoble (13 members).

Patrick Reignier serves on the Administrative Office (Bureau) for the Laboratoire Informatique de Grenoble.

Patrick Reignier is at the head of the Domus Living Lab

Patrick Reignier is a member of the Comité Executif of the Amiqual4Home Equipex

Patrick Reignier is a member of the Comité de pilotage of the MACI (Maison de la Création et l'Innovation)

9.2. Teaching - Supervision - Juries

Patrick Reignier teaches

- elected member of the Conseil des Etudes et de la Vie Universitaire of Grenoble INP

- nominated as a member of the Conseil de la Formation Continue de Grenoble INP

- co-director of the "formation en apprentissage" of Ensimag (3 years program : 1 year for the Licence and 2 years for the Master)

- Supervises the industrial part of the "formation en apprentissage" of the Ensimag engineering school.

James Crowley and **Dominique Vaufreydaz** co-direct the Graphics - Vision - Robotics Specialisation of the MoSIG M2 Masters.

9.2.1. Teaching

James Crowley teaches

- M2 MoSIG Computer Vision

- ENSIMAG 3 Machine Learning.

- M1 MoSIG Intelligent Systems.

- ENSIMAG 2 Intelligent Systems.

Patrick Reignier teaches

- Projet Genie Logiciel, 55h eqTD, M1, Ensimag/Grenoble INP, France.

- Développement d'applications communicantes, 18h eqTD, M2, Ensimag/Grenoble-INP, France

- Introduction aux applications reparties, 18h eqTD, M2, Ensimag/Grenoble- INP, France

- Applications Web et Mobiles , 27h eqTD, M1, Ensimag/Grenoble-INP, France

- Projet Systeme, 12h eq TD, M1, Ensimag/Grenoble-INP, France

- Projet C, 20h eqTD, L3, Ensimag/Grenoble-INP, France.

Thierry Fraichard, taught Autonomous Robotics, 22.5h eqTD, M2 MOSIG, Univ. Grenoble Alpes.

9.2.2. Supervision

Thierry Fraichard directed the following Doctoral students

- Jose Grimaldo Da Silva Filho, "Human-Robot Motion, a Shared Effort Approach", Octobre 2015, Thierry Fraichard and James Crowley.

- Matteo Ciocca, "Safe Robot Motion", Octobre 2016, Thierry Fraichard and Pierre-Brice Wieber.

James Crowley directed the following Doctoral students

- Nachwa Abou Bakr, "Recognition, Modeling and Description of Manipulation actions "
- Thomas Guntz, "Estimating Expertise from Eye Gaze and Emotions", co-directed with Dominique Vaufreydaz

9.2.3. Juries

Patrick Reignier served as a president of the Doctoral Jury for

- Van Bao Nguyen
- Alessandro Fenicio

James Crowley served as a president of the Doctoral Jury for

- Mathieu Barbier
- David Sierre Gonzalez

9.3. Interventions

Thierry Fraichard participated to the event "A robot on trial", mock trial of a futuristic robot as part of the Transfo digital festival, Jan. 19. This successful event attracted around 200 participants

PETRUS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

- Luc Bouganim: Co-organizer of Ecole thématique BDA Masses de Données Distribuées, Aussois, June 2020
- Iulian Sandu Popa: Colloque National Capteurs et Sciences Participatives (CASPA), Paris, 1-4 avril 2019

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

- Nicolas Anciaux: VLDB'19, SIGMOD'19
- Luc Bouganim: EDBT'2020
- Philippe Pucheral: DATA'19, MOBILITY'19, MEDES'19
- Iulian Sandu Popa: ICDE'20, SSDBM'19, IEEE MobileCloud'19, DATA'19, BDA'19 demo
- Guillaume Scerri: BDA'19

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Nicolas Anciaux: Associate Editor of the VLDB Journal

9.1.3.2. Reviewer - Reviewing Activities

- Iulian Sandu Popa: Journal of Internet Services and Applications
- Guillaume Scerri: ACM Transactions on Privacy and Security

9.1.4. Research Administration

- Philippe Pucheral: Member of the HDR committee of the STV doctoral school (UVSQ) since 2014
- Philippe Pucheral: Member of the steering committee of the ED STIC doctoral school of University Paris-Saclay, 'Data, Knowledge and Interactions' committee (about 250 PhD students) since 2014
- Philippe Pucheral: Member of the bureau of the DAVID lab board since 2016
- Nicolas Anciaux: Member of the Council of the Doctoral College of the University Paris-Saclay
- Nicolas Anciaux: Member of the "Bureau du comité des projets" at Inria saclay
- Nicolas Anciaux: Member of the DATAIA Convergence Institute Program Committee since 2018.
- Nicolas Anciaux: Correspondent for the Doctoral school ED STIC of University Paris-Saclay at Inria Saclay
- Nicolas Anciaux: Responsible for the 'Mission Jeunes Chercheurs' (MJC) at Inria Saclay
- Nicolas Anciaux: Responsible for the 'Formation par la Recherche' (FPR) at Inria Saclay
- Nicolas Anciaux: Member of the bureau of the DAVID lab board
- Luc Bouganim: Member of the Scientific Commission (CS) of Inria Saclay-IDF (Cordi-S, Post-Doc, Delegation)
- Luc Bouganim: Member of the Commission for Technological Development (CDT) of Inria Saclay-IDF

- Luc Bouganim: Member of the admission committee for DR2 at Inria
- Luc Bouganim: Member of the recruitment committee for CRCN at Inria
- Luc Bouganim: Member of the recruitment committee of associate professor at ITU Copenhagen
- Iulian Sandu Popa: Member of the Commission for Technological Development (CDT) of Inria Saclay-IDF
- Iulian Sandu Popa: Member of the recruitment committee for an MCF (Maître de Conférences) position at CNAM
- Iulian Sandu Popa: PhD thesis referent for the ED STIC doctoral school of University Paris-Saclay
- Guillaume Scerri: PhD thesis referent for the ED STIC doctoral school of University Paris-Saclay

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Licence : Iulian Sandu Popa, Bases de données (niveau L3), 96, UVSQ, France. Guillaume Scerri, Initiation aux bases de données (niveau L2), 63, UVSQ, France. Guillaume Scerri, Fondements de l'informatique (niveau L1), 36, UVSQ, France. Guillaume Scerri, Théorie des Langages (niveau L2), 45, UVSQ, France.
- Master : Iulian Sandu Popa, Bases de données relationnelles (niveau M1), Gestion des données spatiotemporelles (niveau M2), Sécurité des bases de données (niveau M2), 96, UVSQ, France. Philippe Pucheral, responsible of the DataScale master, courses in M1 and M2 in databases and in security, introductory courses for jurists,UVSQ, France. Guillaume Scerri, Bases de données relationnelles (niveau M1), 36, UVSQ, France. Guillaume Scerri, Sécurité et bases de données pour juristes, 4.5, UVSQ, France. Guillaume Scerri, Sécurité, 18, UVSQ, France.
- Engineers school : Nicolas Anciaux, courses on Databases (module IN206, niveau M1), 21, and Advanced databases (module ASI13, niveau M2), 24, at ENSTA ParisTech. Nicolas Anciaux, Systèmes d'Information "privacy by design" (niveau M1), 30, at ENSIIE Evry, France. Luc Bouganim, Systèmes d'Information "privacy by design" (niveau M1), 42, ENSIIE Evry, France. Luc Bouganim, Bases de données relationnelles (niveau M1), 32, ENSTA, France.

9.2.2. Supervision

- PhD : Julien Loudet, Distributed and Privacy-Preserving Personal Queries on Personal Clouds, UVSQ, October 2019, Luc Bouganim and Iulian Sandu Popa
- PhD: Axel Michel, Secure Distributed Computations, INSA CVL, April 8, 2019, Benjamin Nguyen and Philippe Pucheral
- PhD in progress: Riad Ladjel, Secure Distributed Computation for the Personal Cloud, October 2016, Nicolas Anciaux, Philippe Pucheral and Guillaume Scerri
- PhD in progress: Dimitris Tsoulovos, Privacy-by-design Middleware for Urban-scale Mobile Crowdsensing, April 2017, Nicolas Anciaux and Valérie Issarny (Inria Mimove)
- PhD in progress: Robin Carpentier, Secure and efficient data processing in trusted execution environments for the personal cloud, October 2018, Nicolas Anciaux, Iulian Sandu Popa and Guillaume Scerri

9.2.3. Juries

- Nicolas Anciaux : Jury Member of the PhD of Rémy Delanaux (University Lyon I)
- Philippe Pucheral : President of the PhD jury of Karima RAFES (Paris-Saclay University, 25/01/2019)
- Philippe Pucheral : President of the PhD jury of Duc CAO (Paris-Saclay University, 26/09/2019)

9.3. Popularization

- Nicolas Anciaux: "Sécurité des données personnelles, démonstration de la box 'DomYcile' développée par PETRUS et Hippocad pour le département des Yvelines, Journées du Patrimoine 2019 à l'Inria Rocquencourt, Sept. 2019.

- Nicolas Anciaux: Demonstration of the 'DomYcile' home-box, Inria stand, European Big Data Value Forum (EBDVF19), organized by BDVA in collaboration of the European Commission, Oct. 2019.

- Round table on "Personal Dataspaces" at European Big Data Value Forum (EBDVF19), organized by BDVA in collaboration of the European Commission, Oct. 2019. The round table is chaired by Marko Turpeinen (Director EIT Digital Finland). Intervention of N. Anciaux about "Empowerment and Big Data on personal data: from data portability to personal agency".

- Nicolas Anciaux: séminaire LINC à la CNIL. "Solutions de cloud personnel : sécurité, vie privée, et perspectives", Nov. 2019.

- Nicolas Anciaux: "PETRUS : Cloud personnel de confiance et gestion de nos données", Café des Sciences d'Inria, site de Rocquencourt, 11 juin 2019

- N. Anciaux: Panel on "European Data Protection Law", 10th Annual Forum of Trans Europ Expert 'Le droit de l'Union européenne vu d'ailleurs', Conseil Suprérieur du Notariat, Paris. April 2019. Round table chaired by J. Sénéchal (Dir. pôle "Droit des contrats" at TEE) and N. Martial-Braz (Dir. pôle "Droit de la propriété intellectuelle at TEE), with B. Amaudric du Chaffaut (Deputy General Counsel at Google France) on GDPR evolution in Europe, F. Nicola (Prof. at Washington College of Law) on the echo of GDPR in California and N. Anciaux (researcher at Inria) on technical-juridical challenges of the GDPR.

POTIOC Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- EduIHM workshop at IHM 2019 - Martin Hachet
- EduIHM workshop at EIAH 2019 - Martin Hachet
- "4ème conference nationale sur le Neurofeedback: le neurofeedback, un outil pour la recherche en neurosciences cognitives ?", co-chair - Fabien Lotte
- "How do we learn to use a BCI? Current state of knowledge, prospects of improvement using an interdisciplinary approach", Workshop at the International Graz BCI conference 2019, Graz, Austria – co-chair, Fabien Lotte

10.1.1.2. Member of the Organizing Committees

- Workshops organizer and sponsors finder for the event for the French BCI/NF Society, called CORTICO days - Jelena Mladenovic

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- International Graz BCI conference 2019, Fabien Lotte
- NeuroAdaptive Technology conference (NAT) 2019, Fabien Lotte
- Journées d'informatique théâtrale 2020, Martin Hachet, Pascal Guitton

10.1.2.2. Reviewer

- ACM UIST 2019
- ACM CHI 2019
- ACM CHI Play 2019
- HICS 2019
- TACCESS 2019
- ASSETS 2019
- IEEE SMC 2019
- ICASSP 2019
- CogSci 2019
- JJC-ICON 2019
- Int Graz BCI Conf 2019

10.1.3. Journal

10.1.3.1. Guest editor

- ERCIM News 120 - Educational Technology, Martin Hachet
- Frontiers in Human Neuroscience, Fabien Lotte
- Frontiers in Brain-Computer Interfaces, Fabien Lotte

10.1.3.2. Member of the Editorial Boards

- IEEE Computer Graphics and Applications, Martin Hachet
- Journal of Neural Engineering, Fabien Lotte
- Brain-Computer Interfaces, Fabien Lotte

10.1.3.3. Reviewer - Reviewing Activities

- Frontiers in Human Neuroscience
- Journal of Neural Engineering
- Brain-Computer Interfaces
- IEEE TBME
- Nature Communications
- ACM TOCHI
- IEEE TCYB
- IJHCS
- Scientific Report
- IEEE Trans. Games
- NeuroImage
- JMUI

10.1.4. Invited Talks

- "Hybrid environments (real/virtual) in Education", LIRIS, Lyon, Jan. 2019 - Martin Hachet
- "Vers une carte multisensorielle en réalité augmentée pour les personnes aveugles et malvoyantes : une approche participative", ARIBA Nov. 2019, Bordeaux - Lauren Thevin
- "VISTE project", FISAF, Nov. 2019, Paris - Lauren Thevin
- "Example of HCI for Humas: Previous works and perspectives", LMU Muchen, April 2019 - Lauren Thevin
- "Adaptive Riemannian Classifiers for Long-term Brain-Computer Interface training of a Tetraplegic User", Seminar at ISAE-Supaero, December 2019 - Fabien Lotte
- "From machine learning to user learning in Brain-Computer Interaction", Tokyo University of Agriculture and Technology (TUAT), GIR Seminar, Tokyo, Japan, November 2019 - Fabien Lotte
- "Understanding, modeling and optimizing Mental Imagery-based Brain-Computer Interface user training", BCI: Science and Practice international conference, Keynote, Samara, Russia, October 2019 - Fabien Lotte
- "Machine learning and experimental tools towards EEG-based NeuroAdaptive Technologies", international conference on NeuroAdaptive Technologies (NAT'19), Keynote, Liverpool, UK, July 2019 - Fabien Lotte
- "Brain-Computer Interfaces: Myths, open challenges and realistic expectations", NICE Meeting, Ludwig Maximilian University of Munich, Germany, June 2019 - Fabien Lotte
- "Understanding and modeling user training in Mental-Imagery-based Brain-Computer Interfaces", University of Freiburg, Germany, June 2019 - Fabien Lotte
- "ElectroEncephaloGraphic signal processing & classification for Brain-Computer Interfaces", Time Series Day, Rennes, France, March 2019 - Fabien Lotte
- "Vers une accessibilité numérique des systèmes d'éducation numérique", ESPE Angers, Rencontres académiques du numérique, Rectorat de Nantes, En visioconférence, March 2019 - Pascal Guitton & Hélène Sauzéon
- "Ethique du numérique pour la santé", Séminaire IA et sens clinique, Bordeaux, March 2019 - Pascal Guitton

- "Réalité virtuelle et handicap : étude, évaluation, réhabilitation", 20 ans d'Immersia, Rennes, November 2019 - Pascal Guitton
- "Les Sciences du Numérique au service de la pratique sportive", Colloque Sport et numérique, Bordeaux, July 2019 - Pascal Guitton
- "Interfaces Cerveau-Ordinateur (ICO) & Neurofeedback (NF): Influence des capacités somatosensorielles sur la réhabilitation motrice post-AVC", SOFMER, Bordeaux, Oct. 2019 - Léa Pillette
- "Predicting BCI performances from users' profile using Computational Modelling", Workshop "How do we learn to use a BCI? Current state of knowledge, prospects of improvement using an interdisciplinary approach", International Graz BCI conference, Graz, Austria, September 2019 - Camille Benaroch

10.1.5. Leadership within the Scientific Community

- Co-leader of the EduIHM group dedicated to research in HCI for Education - Martin Hachet
- Member of the administrative council of CORTICO, the French national association of BCI - Fabien Lotte
- Secretary of the Bordeaux association of Doctoral Students in Computer Science (AFoDIB) - Aline Roc

10.1.6. Scientific Expertise

- Expert for "Credit Impot Recherche" - Martin Hachet
- Committee for the creation of 2 Inria teams - Martin Hachet
- Committee for recruitment of an assistant professor at Telecom ParisTech - Martin Hachet
- Expert for Appel à projets exploratoires Institut de la cognition - Pascal Guitton

10.1.7. Research Administration

- Member of "Bureau du comite des projets", Martin Hachet
- Member of "Conseil administration de l'AFIHM", Martin Hachet
- Representative of Inria at NEM (New European Media), Fabien Lotte
- Member of "Commission des emplois recherche Inria Bordeaux", Fabien Lotte
- Member of Commission de recrutement des Inspecteurs Généraux de l'Education Nationale (IGEN), Pascal Guitton
- Responsable of Inria Cellule de veille et de prospective, Pascal Guitton
- Member of Inria Ethical Committee (COERLE), Pascal Guitton
- Member of Inria Comité Parité et Egalité, Pascal Guitton
- Responsable of Inria Radar Committee (new annual Activity Report), Pascal Guitton
- Member of Inria International Chairs Committee, Pascal Guitton

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: Réalité Virtuelle, 12h eqTD, M2 Cognitive science, Université de Bordeaux - Martin Hachet
- Master: Réalité Virtuelle, 6h eqTD, M2 Cognitive science, Université de Bordeaux - Fabien Lotte
- Master: Handicap et Nouvelles technologies, CM 7,5h eqtd, M2 Cognitive Science, Université de Bordeaux - Aurélien Appriou
- Master : Handicap et Nouvelles technologies, 9h eqTD, M2 Cognitive science, Université de Bordeaux - Philippe Giraudeau

- Master: Réalités Virtuelles et augmentées, 18h eqTD, M2 Computer science, Université de Bordeaux - Martin Hachet,

- Master: Réalités Virtuelles et augmentées, 6h eqTD, M2 Computer science, Université de Bordeaux - Fabien Lotte,

- Master: Réalités Virtuelles et augmentées, 18h eqTD, M2 Computer science, Université de Bordeaux - Rajkumar Darbar

- Master: Neuroergonomics & Brain-Computer Interfaces, 2h eqtd, Master Human-Computer Interaction, Ludwig-Maximilians-Universität München, Germany - Fabien Lotte

- Bachelor: Initiation to computer sciences, 31.66h eqTD, L1 Université de Bordeaux - Adélaïde Genay

- Bachelor: C programing, 14,67h eqTD, L2 Université de Bordeaux - Adélaïde Genay

- Engineering school: Ergonomie et Interaction, 15h eqTD, 3rd year, ENSEIRB, INP - Martin Hachet

- Engineering school: Réalités Virtuelles et augmentées, 1,5h eqTD, ENSC - Martin Hachet

- Engineering school: Web programming, ENSC - Lauren Thevin

- Engineering School: Aeronautical engineering and Neuroergonomics, 3h eqTD, M2 ISAE-Supaero, Toulouse - Fabien Lotte

- Engineering school: Immersion and interaction with visual worlds, 4h eqtd, Graduate Degree Artificial Intelligence, Ecole Polytechnique Palaiseau - Fabien Lotte

- Engineering school: Advanced mathematics and computer science, 2018-2019: 61.5h eqTD, Ecole Nationale Supérieure des Arts et Metiers, ENSAM, Bordeaux, France - Camille Benaroch

- Engineering school: Lecture "Interface Cerveau-Ordinateur (BCIs) Le quotidien de la recherche", UE Systèmes Cognitifs (CNU 27), 2h eqTD, ENSC, Bordeaux INP - Aline Roc and Léa Pillette

10.2.2. Supervision

- PhD in progress: Adelaïde Genay, Hybrid Avatars, 1/10/2019, Martin Hachet

- PhD in progress: Rajkumar Darbar, Actuated Tangible User Interfaces, Since 1/12/2017, Martin Hachet

- PhD in progress: Philippe Giraudeau, Collaborative learning with tangible and aumented interfaces, Since 1/10/2017, Martin Hachet

- PhD in progress: Marc Baloup, Interaction with Avatars, Since 1/10/2018, Martin Hachet (33%)

- PhD in progress: Aurélien Appriou, Estimating learning-related mental states in EEG, since 1/10/2017, Fabien Lotte

- PhD in progress: Camille Benaroch, Computational Modeling of BCI user training, since 1/10/2018, Fabien Lotte (50%)

- PhD in progress: Aline Roc, Designing, studying and optimzing training tasks and training program for BCI control, Fabien Lotte

- PhD defended: Pierre-Antoine Cinquin, Design and Experimental Validation of Accessible E-learning systems for people with cognitive disabilities, November 23th 2019, Pascal Guitton (50%)

- PhD defended: Jelena Mladenovic, User modeling for Adaptive BCI design, since 01/01/2016, Defended 10/09/2019, Fabien Lotte (50%)

- PhD defended: Léa Pillette, Formative feedback for BCI, since 01/10/2016, Defended 16/12/2019, Fabien Lotte (50%)

10.2.3. Juries

- HDR: Isabelle Pecci [president], Université de Lorraine, Martin Hachet

- HDR: Pierrick Legrand [examiner], Univ. Bordeaux, France, Fabien Lotte

- HDR: Selina Wriessnegger [with report], TU Graz, Austria, Fabien Lotte
- PhD: Grégoire Cattan [with report], Univ. Grenoble Alpes, Martin Hachet
- PhD: Sylvain Pauchet [with report], ISAE Supaero, Martin Hachet
- PhD: Flavio Camarrone [with report], KU Leuven, Belgium, Fabien Lotte
- PhD: Andreas Meinel [with report], Univ. Freiburg, Germany, Fabien Lotte
- PhD: Fanny Grosselin [with report], Sorbonne Université, France, Fabien Lotte
- PhD: Kevin Verdière [president], ISAE-Supaero, France, Fabien Lotte
- PhD: Pedro Luiz Coelho Rodrigues [examiner], Grenoble INP, France, Fabien Lotte
- PhD: Hakim Si Mohammed [guest], INSA Rennes, France, Fabien Lotte
- PhD: Leticia Seixas-Pereira [guest], Univ. Paris 8, France, Pascal Guitton
- PhD: Thomas Crespel [president], Univ. Bordeaux, France, Pascal Guitton
- MD: Andrea Ferrier [examiner], Univ. Bordeaux/CHU Bordeaux, France, Fabien Lotte
- MS: Jaime A. Riascos [examiner], Federal University of Rio Grande do Sul, Brazil, Fabien Lotte

10.3. Popularization

10.3.1. Articles and contents

- Interview - video portrait for "Dealers de Science" made by 2nd year Master's student in Mediation of the Sciences (to be published online in 1-2 months), December 2019 - Aline Roc
- Petit binaire : les dessous du JPEG, Blog binaire – Le Monde, May 2019, Pascal Guitton, [37]
- Ethique du numérique pour la santé, Blog binaire – Le Monde, November 2019, Pascal Guitton, [38]

10.3.2. Interventions

- Computer Sciences and Art - Rencontre Mexique-France - La culture à l'ère numérique, Nov 2019 - Martin Hachet
- FACTS Festival, Art and Sciences, Bordeaux Nov. 2019 - Martin Hachet
- "Des étoiles pleins les yeux". Rancards du Savoir. Bordeaux Nov. 2019 - Martin Hachet
- PubHD Bordeaux, November 2019 - Philippe Giraudeau
- "Erlen, an Ambiant Interface dedicated to the awareness of energy consumption" BootCamp #7 for Digital Vice-Presidents of french Universities, November 2019, Bordeaux - Philippe Giraudeau
- "Why and How to train to control a Brain-Computer Interfaces?", BCI: Science and Practice international conference, outreach lecture, Samara, Russia, October 2019 - Fabien Lotte
- "One year of scientific visit on neurotechnologies at the RIKEN Brain Science Institute, Japan", Japanese Society for the promotion of Science (JSPS) Business meeting, Bordeaux, September 2019 - Fabien Lotte
- "Progrès et applications des interfaces cerveau-ordinateur", Séminaire IRGO, Bordeaux, France, April 2019 - Fabien Lotte
- "Pourquoi et comment apprendre à contrôler une interface cerveau-ordinateur ?", conférence 'les interfaces cerveau-machine : piloter un objet par l'activité cérébrale', cité des sciences et de l'industrie, Paris, France, February 2019 - Fabien Lotte
- "Ethique et numérique", Festival Transfo, Plongez dans l'univers du numérique, Grenoble, January 2019 - Pascal Guitton

10.3.3. Internal action

- InfoBreak Inria Bordeaux, "Une équipe de choc pour interfacer cerveaux et machines" - Fabien Lotte

<p style="text-align:center">**RAINBOW Project-Team**</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Marie Babel was the Scientific Chair and the General co-chair of the workshop "Robotique de la marche" organized in Inria Rennes on December 13th 2019.

9.1.1.2. Member of the Organizing Committees

- P. Robuffo Giordano co-organized with F. Schiano and D. Floreano (EPFL) the Workshop on "Aerial Swarms" at the 2019 International Conference on Intelligent Systems and Robots, Macau, China

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Paolo Robuffo Giordano: Program Co-Chair of MRS 2019
- François Chaumette: Program Co-Chair of ICRA 2020 to be held in Paris in June 2020.

9.1.2.2. Member of the Conference Program Committees

- Claudio Pacchierotti: Eurohaptics (Associate Editor), World Haptics (Associate Editor), ICRA 2020 (Associate Editor), Demonstrations Co-Chair, IEEE Haptics Symposium (HAPTICS) 2020
- Paolo Robuffo Giordano: ICRA 2020 (Associate Editor), RSS 2019 (Area Chair)
- Eric Marchand: ICRA 2020 (Associate Editor)
- Julien Pettré: IEEE Virtual Reality 2019, ACM Motion and Interactions in Games 2019, ACM Symposium on Computer Animation

9.1.2.3. Reviewer

- Alexandre Krupa: IROS 2019 (1), ICRA 2020 (1)
- Eric Marchand: IROS 2019 (1), ICRA 2019 (2), ICRA 2020 (1)
- Marie Babel: ICRA 2020 (4), SMC 2019 (1)
- Paolo Robuffo Giordano: ICRA 2020 (2)
- François Chaumette: ICRA 2020 (1), CDC 2019 (1), RoMoCo 2019 (1)

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Paolo Robuffo Giordano is Editor for the IEEE Transactions on Robotics since January 2019
- Alexandre Krupa was Associate Editor of IEEE Robotics and Automation Letters (RA-L) (until June 2019) and is currently Associate Editor for the IEEE Transactions on Robotics (since July 2019)
- Eric Marchand is a Senior Editor of IEEE Robotics and Automation Letters (RA-L) and an Editor for Interstices)i(
- François Chaumette: Editor of the IEEE Transactions on Robotics, Editorial Board of the Int. Journal of Robotics Research, Editorial Board of the Springer Tracts in Advanced Robotics, Board Member of the Springer Encyclopedia of Robotics.
- Julien Pettré is Associate Editor for the Wiley's Computer Graphics Forum, and Associate Editor for the Wiley's Computer Animation and Virtual Worlds

- Vincent Drevelle: ActaCybernetica
- Eric Marchand: IEEE RA-L (2)
- Marie Babel: IEEE RA-L (1)
- Paolo Robuffo Giordano: IJRR (1), IEEE RA-L (1), IEEE T-CST (2), IEEE T-RO (2)
- François Chaumette: IEEE Trans. on Industrial Electronics (2), IEEE RA-L (1), Acta Astronautica (1)
- Claudio Pacchierotti: RAL (1), IJHCS (5), TOH (7), JMRR (1), ICRA (4), TIE (2), TVCG (1), Frontiers in Robotics and AI (2), THMS (1), Presence (1), Scientific Reports (1)

9.1.4. Invited Talks

- Paolo Robuffo Giordano:
  - "Human-assisted Robotics", Robotics and Mechatronics lab, University of Twente, Netherlands, October 2019
  - "Collective Control, State Estimation and Human Interaction for Quadrotors in Unstructured Environments", Technoférence, Images et Réseaux, Rennes, October 2019
  - "Human-assisted Robotics", Robotics Research Jam Session, Univ. of Pisa, Italy, April 2019
- Claudio Pacchierotti:
  - with A. M. Okamura, "Learnings from cross-functional work on skin stretch haptics." Workshop "Cross-functional collaboration between engineering & perception researchers" at WHC Conference, Tokyo, Japan, 2019.
  - "Cutaneous haptic technologies for robotics and immersive environments." Cirrus Logic, Edinburgh, United Kingdom, 2019.
  - "Virtual Reality and Robotics for Industry 4.0." University of Aarhus, Herning, Denmark, 2019.
- Marie Babel:
  - "Simulation virtuelle et retour haptique du mouvement : une expérience de conduite réaliste immersive", Séminaire d'hiver de l'IFRATH, Paris, January 2019
  - "Fauteuil roulant intelligent : croiser les regards (académiques et cliniques)", Technoférence, Images et Reseaux, January 2019
- François Chaumette:
  - Plenary talk on "Geometric and end-to-end robot vision-based control" at 12th Int. Workshop on Robot Motion and Control (RoMoCo 2019), Poznan, Poland, July 2019 [33].
  - "Sensor-based Control", GdR Robotics Winter School : Robotics Principia, Sophia-Antipolis, January 2019.
- Fabien Spindler:
  - "Avancées en vision pour la saisie et la manipulation", Journée GT3 du GDR robotique, ISIR, Paris, Juin 2019

9.1.5. Leadership within the Scientific Community

- Claudio Pacchierotti is the Chair of the IEEE Technical Committee on Haptics and the Secretary of the Eurohaptics Society.
- François Chaumette is a member of the Scientific Council of RTE Vedecom, ImVIA lab in Dijon and Le Creusot, and a founding member of the Scientific Council of the "GdR Robotique".

9.1.6. Scientific Expertise

- Paolo Robuffo Giordano was reviewer for evaluating proposals of the ANR (French National Research Agency), Mitacs (Canada), SNSF (Swiss National Science Foundation), MIUR (Italian National Research Agency), and the EU commission (ERC Consolidator Grants)

- Claudio Pacchierotti was reviewer for evaluating proposals of the European Science Foundation (ESF).

- Fabien Spindler was a member of the HCERES evaluation committee of URIA, the laboratory of the Ecole des Mines de Douai, the DTIS laboratory of Onera and the LISTIC in Annecy.

- Marie Babel serves as an expert for the International Mission of the French Research Ministry (MEIRIES) - Campus France (about 30 expertises per year). She was also reviewer for evaluating proposals of the ANR (French National Research Agency)

- François Chaumette served for the fourth (and last) time as Panel Member of the PE7 ERC Consolidator Grants. He also served as member of IEEE RAS Pioneer Award Evaluation Panel and IEEE RAS Awards Evaluation Panel. He was a panel member of the 2019 ICREA Academia program (similar to IUF for Catalonia). Finally, he served in the jury for the Inria research positions (CR2) available for the Inria Rennes-Bretagne Atlantique centre.

9.1.7. Research Administration

- Alexandre Krupa is a member of the CUMIR ("Commission des Utilisateurs des Moyens Informatiques pour la Recherche") of Inria Rennes-Bretagne Atlantique, he also serves as Inria representative (correspondent) at the IRT Jules Verne.

- Eric Marchand served as secretary in the board of the "Association Française pour la Reconnaissance et l'interprétation des Formes" (AFRIF). He is the head of "Digital Signals and Images, Robotics" department at IRISA.

- François Chaumette serves as the president of the committee in charge of all the temporary recruitments ("Commission Personnel") at Inria Rennes-Bretagne Atlantique and IRISA. He is also a member of the Head team of Inria Rennes-Bretagne Atlantique, and of the Scientific Steering Committee (COSS) of IRISA. Since December 2019, he is a member of the Inria COERLE committee (in charge of the ethical aspects of all Inria research).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Marie Babel:

Master INSA2: "Robotics", 26 hours, M1, INSA Rennes

Master INSA1: "Concepts de la logique à la programmation", 20 hours, L3, INSA Rennes

Master INSA1: "Langage C", 12 hours, L3, INSA Rennes

Master INSA2: "Computer science project", 30 hours, M1, INSA Rennes

Master INSA1: "Practical studies", 16 hours, L3, INSA Rennes

Master INSA2: "Image analysis", 26 hours, M1, INSA Rennes

Master INSA1: "Remedial math courses", 50 hours, L3, INSA Rennes

François Chaumette:

Master SISEA: "Robot Vision", 12 hours, M2, Université de Rennes 1

Master ENS: "Visual servoing", 6 hours, M1, Ecole Nationale Supérieure de Rennes

Master ESIR3: "Visual servoing", 8 hours, M2, Ecole supérieure d'ingénieurs de Rennes

Vincent Drevelle:

> Master ILA: "Terrain information systems", 30 hours, M2, Université de Rennes 1
>
> Master Info: "Artificial intelligence", 20 hours, M1, Université de Rennes 1
>
> Licence Info: "Computer systems architecture", 42 hours, L1, Université de Rennes 1
>
> Master Elec: "Electronics project", 16 hours, M1, Université de Rennes 1
>
> Portail Info-Elec: "Discovering programming and electronics", 22 hours, L1, Université de Rennes 1
>
> Licence Miage: "Computer programming", 78 hours, L3, Université de Rennes 1
>
> Master Elec: "Instrumentation, localization, GPS", 4 hours, M2, Université de Rennes 1
>
> Master Elec: "Multisensor data fusion", 20 hours, M2, Université de Rennes 1
>
> Master IL: "Mobile robotics", 32 hours, M2, Université de Rennes 1

Alexandre Krupa:

> Master FIP TIC-Santé: "Ultrasound visual servoing", 6 hours, M2, Télécom Physique Strasbourg
>
> Master ESIR3: "Ultrasound visual servoing", 9 hours, M2, Esir Rennes

Eric Marchand:

> Master Esir2: "Colorimetry", 24 hours, M1, Esir Rennes
>
> Master Esir2: "Computer vision: geometry", 24 hours, M1, Esir Rennes
>
> Master Esir3: "Special effects", 24 hours, M2, Esir Rennes
>
> Master Esir3: "Computer vision: tracking and recognition", 24 hours, M2, Esir Rennes
>
> Master MRI: "Computer vision", 24 hours, M2, Université de Rennes 1
>
> Master ENS: "Computer vision", 16 hours, M2, ENS Rennes
>
> Master MIA: "Augmented reality", 4 hours, M2, Université de Rennes 1

Julien Pettré:

> Master SIF: "Motion for Animation and Robotics", 6 hours, Unviersité de Rennes 1
>
> Master Artificial Intelligence and Advanced Visual Computing: "Advanced 3D graphics", 3 hours, Ecole Polytechnique

9.2.2. Supervision

- Ph.D. in progress: Agniva Sengupta, "Visual tracking of deformable objects with RGB-D camera", started in January 2017, supervised by Alexandre Krupa and Eric Marchand
- Ph.D. in progress: Xavier De Tinguy de la Giroulíere, "Conception de techniques d'interaction multisensorielles pour la manipulation dextre d'objets en réalité virtuelle", started in September 2017, supervised by Maud Marchal, Anatole Lécuyer (Hybrid group) and Claudio Pacchierotti
- Ph.D. in progress: Rahaf Rahal, "Mixed tactile-force feedback for safe and intuitive robotic teleoperation", started in October 2017, supervised by Paolo Robuffo Giordano and Claudio Pacchierotti
- Ph.D. in progress: Romain Lagneau (Hybrid group), "Control of soft object deformation by visual servoing", started in October 2017, supervised by Alexandre Krupa and Maud Marchal (Hybrid group)
- Ph.D. in progress: Florian Berton, "Gaze analysis for crowd behaviours study", started in October 2017, supervised by Anne-Hélène Olivier (MimeTIC group), Ludovic Hoyet (MimeTIC group) and Julien Pettré
- Ph.D. in progress: Zane Zake (IRT Jules Verne), "Visual servoing for cable-driven parallel robots", started in January 2018, supervised by Stéphane Caro (LS2N) and François Chaumette
- Ph.D. in progress: Javad Amirian, "Crowd motion prediction for robot navigation in dense crowds", started in January 2018, supervised by Jean-Bernard Hayet (CIMAT, Guana) and Julien Pettré

- Ph.D. in progress: Xi Wang "Robustness of Visual SLAM techniques to light changing conditions", started in September 2018, supervised by Eric Marchand and Marc Christie (MimeTIC group)

- Ph.D. in progress: Alexander Oliva, "Coupling Vision and Force for Robotic Manipulation", started in October 2018, supervised by François Chaumette and Paolo Robuffo Giordano

- Ph.D. in progress: Ketty Favre "Lidar-based localization", started in October 2018, supervised by Eric Marchand, Muriel Pressigout and Luce Morin (IMAGE group)

- Ph.D. in progress: Fabien Grzeskowiak, "Crowd simulation for testing robot navigation in dense crowds", started in October 2018, supervised by Marie Babel and Julien Pettré

- Ph.D. in progress: Guillaume Vailland, "Outdoor wheelchair assisted navigation: reality versus virtuality", started in November 2018, supervised by Marie Babel and Valérie Gouranton (Hybrid group)

- Ph.D. in progress: Benoît Antoniotti "Scene reconstruction and exploration", started in March 2019, supervised by Eric Marchand, François Chaumette, and Antoine Lehuger (Creative)

- Ph.D. in progress: Pascal Brault, "Planification et optimisation de trajectoires robustes aux incertitudes paramétriques pour des taches robotiques fondées sur l'usage de capteurs", started in September 2019, supervised by Paolo Robuffo Giordano and Quentin Delamare

- Ph.D. in progress: Alberto Jovane, "Modélisation de mouvements réactifs et comportements non verbaux pour la création d'acteurs digitaux pour la réalité virtuelle", started in September 2019, supervised by Marc Christie (MimeTIC group), Claudio Pacchierotti, Ludovic Hoyet (MimeTIC group) and Julien Pettré

- Ph.D. in progress: Samuel Felton "Deep Learning for visual servoing", started in October 2019, supervised by Eric Marchand and Elisa Fromont (Lacodam group)

- Ph.D. in progress: Mathieu Gonzalez "SLAM in time varying environment", started in October 2019, supervised by Eric Marchand and Jérome Royan (IRT B<>COM)

- Ph.D. in progress: Adèle Colas, "Modélisation de comportements collectifs réactifs et expressifs pour la réalité virtuelle", started in November 2019, supervised by Claudio Pacchierotti, Anne-Hélène Olivier, Ludovic Hoyet (MimeTIC group) and Julien Pettré

- Ph.D. defended: Salma Jiddi, "Photometric Registration of Indoor Real Scenes using an RGB-D Camera with Application to Mixed Reality", defended in January 2019, supervised by Eric Marchand [2]

- Ph.D. defended: Ide-Flore Kenmogne "Localisation ensembliste de drones à l'aide de méthodes par intervalles", defended in March 2019, supervised by Eric Marchand and Vincent Drevelle [3]

- Ph.D. defended: Quentin Delamare, "Algorithmes d'estimation et de commande pour des quadrirotors en interaction physique avec l'environnement", defended on December 2019, supervised by Paolo Robuffo Giordano and Antonio Franchi (LAAS) [1]

- Ph.D. defended: Axel Lopez Gandia, "Optical flow-based navigation algorithms for virtual humans", defended on December 2019, supervised by Julien Pettré and François Chaumette [4]

- Ph.D. to be defended: Hadrien Gurnel "Needle comanipulation with haptic guidance for percutaneous interventions", to be defended in January 2020, supervised by Alexandre Krupa, Maud Marchal (Hybrid group) and Laurent Launay (IRT B<>com)

9.2.3. Internships

- Alexandre Bonneau, ENS Rennes - Univ. Rennes 1, "Haptic rendering of virtual contacts in crowded environments", supervised by J. Pettré

- Pascal Brault, ENS Rennes - Univ. Rennes 1, "Planning of Minimally Sensitive Trajectories for Mobile Robots", supervised by Q. Delamare and P. Robuffo Giordano

- Valerio Paduani, Univ. of Rome "La Sapienza", Italy, "Perception-Aware Human-Assisted Navigation of Mobile Robots on Persistent Trajectories", supervised by M. Cognetti and P. Robuffo Giordano

- Giulia Matarese, Univ. of Pisa, Italy, "Caring about the human operator: haptic shared control for enhanced user comfort in robotic telemanipulation", supervised by C. Pacchierotti and P. Robuffo Giordano

- Riccardo Arciulo, Univ. of Rome "La Sapienza", Italy, "Novel Solution For Human-Robot physical interaction in collaborative tasks", supervised by C. Pacchierotti and P. Robuffo Giordano

- Ahmed Elsherif, École Centrale de Nantes (EMARO), "Shared control of drones with wearable haptic interfaces", supervised by C. Pacchierotti and M. Aggravi

- Daniel Lemos Estima, University of Twente, "Integration between a grounded haptic interface and a robot-assisted flexible needle insertion system", supervised by C. Pacchierotti

- David Steeven Villa Salazar, Univ. Federal do Rio Grande do Sul, "Development of Virtual Reality scenes rendered using ultrasound and vibrotactile haptic interfaces", supervised by C. Pacchierotti

- Samuel Felton, INSA Rennes - Univ. Rennes 1, "Deep Learning for Visual Servoing", supervised by E. Marchand

- Gatien Gaumerais, ESIR 2 - Univ. Rennes 1, "Visual-servoing with Parrot Bebop 2 drone", supervised by F. Spindler

- Quentin Zanini, ENS - Univ. Rennes 1, "Design of a library of 3D shapes for haptic rendering using the ultrahaptics device", supervised by C. Pacchierotti and M. Marchal (Hybrid group)

9.2.4. Juries

- Paolo Robuffo Giordano: Davide Bicego (Ph.D., member, LAAS, Toulouse)

- Julien Pettré: Jennifer Vandoni (Ph.D., member, Paris Saclay) and Maxime Garcia (Ph.D., reviewer, Grenoble Alpes)

- Eric Marchand: Maxime Rousselot (Ph.D. president, univ. de Rennes 1), Dmitry Kuzovkin (Ph.D. president, univ. de Rennes 1), Gilles Simon (HDR, reviewer, Univ. de Lorraine)

- Marie Babel: Lydia Habib (Ph.D., member, LAMIH, Université Polytechnique Hauts de France)

- François Chaumette: Eulalie Coevet (Ph.D., president, Inria Lille), Mateus Laranjeira (Ph.D., reviewer, Cosmer, Toulon), Brahim Tamadazte (HdR, reviewer, Femto, Besançon), Guillaume Caron (HdR, member, MIS, Amiens)

9.3. Popularization

- Due to the visibility of our experimental platforms, the team is often requested to present its research activities to students, researchers or industry. Our panel of demonstrations allows us to highlight recent results concerning the positioning of an ultrasound probe by visual servoing, vision-based shared control using our haptic device for object manipulation, the control of a fleet of quadrotors, vision-based detection and tracking for space navigation in a rendezvous context, the semi-autonomous navigation of a wheelchair, the power wheelchair simulator, and augmented reality applications. Some of these demonstrations are available as videos on VispTeam YouTube channel (https://www.youtube.com/user/VispTeam/videos).

9.3.1. Interventions

- François Pasteau participated to the Tech'in Vitré forum with an interview in March 2019.

- Solenne Fortun participated to the Societé de gérontologie de l'ouest et du centre (SGOC) congress with an interview in May 2019.

- Marie Babel animated an interactive session organized in Inria Rennes about "J'peux pas, j'ai informatique" on April 3rd, 2019 for secondary-school pupils.

RITS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Reviewer

Raoul de Charette: *BMVC 2019*, *CVPR 2019*, *ICCV 2019*, *AAAI 2019*, *IEEE ITSC 2019*, *IEEE IV 2019*.

Jean-Marc Lasgouttes: *IEEE ITSC 2019*, *ICVES 2019*.

Fawzi Nashashibi : *IEEE ICRA 2019*, *IEEE IROS 2019*, *IEEE IV 2019*, *IEEE ITSC 2019*, *IEEE VTC 2018*, *IEEE ICVES 2019*.

Anne Verroust-Blondet: *IEEE ICRA 2020*, *IEEE IV 2019*, *IEEE ITSC 2019*, *ICVES 2019*.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

Guy Fayolle: associate editor of the journal *Markov Processes and Related Fields*.

Fawzi Nashashibi: associate editor of the journal *IEEE Transactions on Intelligent Vehicles*, associate editor of the journal *IEEE Transactions on Intelligent Transportation Systems*.

Fawzi Nashashibi: currently Guest Editor of the *IEEE Sensors* journal (ISSN 1424-8220), Special Issue on "The Application of Sensors in Autonomous Vehicles".

Anne Verroust-Blondet: associate editor of the journal *The Visual Computer*.

9.1.2.2. Reviewer - Reviewing Activities

Raoul de Charette: *IEEE Transactions on Intelligent Transportation Systems*

Guy Fayolle: *AAP, MPRF, PTRF, QUESTA, European Journal of Combinatorics, JSP, Physica A, Springer Science*.

Jean-Marc Lasgouttes: *IEEE Transactions on Intelligent Transportation Systems*, *Probability in the Engineering and Informational Sciences*.

Fawzi Nashashibi: *IEEE Transactions on Intelligent Transportation Systems*, *IEEE Transactions on Intelligent Vehicles*, *Transportation Research Part C*, *IEEE ACCESS*.

Anne Verroust-Blondet: *IEEE Transactions on Intelligent Vehicles*, *The Visual Computer*.

9.1.3. Invited Talks

Raoul de Charette: *Sparse and dense data in computer vision*, Universite Laval, Québec, Canada, July 5th 2019.

Guy Fayolle was invited participant at the conference *Transient Transcendence in Transylvania*, Braov, Romania, May 13–17, 2019.

Gérard Le Lann: *Automated Driving: Ethical/Moral Quandaries*, invitation by Comité d'éthique du CNRS (COMETS), Paris, 26 February 2019.

Gérard Le Lann: *Ethical and Privacy Issues in Autonomic Vehicular Networks*, invited talk, Symposium on Networking Research Topics: Past, Present and Future inspired by Mario Gerla, Politecnico di Milano (Italy), 3 June 2019.

Gérard Le Lann: *Une mise en perspective - Qu'avons-nous appris de l'aventure Arpanet/Internet qui puisse servir aujourd'hui ?*, Colloque SIF Les 50 ans d'Internet, CNAM, Paris, 29 October 2019.

Fawzi Nashashibi: *Connected autonomous vehicles: objectives and challenges*, invited plenary talk, at the JNRR 2019 (national days on robotics research), Vittel, October 18, 2019.

Fawzi Nashashibi: *Connected Autonomous Vehicles: selected challenges*, Keynote speaker, at the IEEE ITSC 2019 conference - workshop, Auckland (New Zealand), October 27, 2019.

Fawzi Nashashibi: *The role of the intelligent infrastructure in the development and deployment of autonomous vehicles*, Keynote speaker, at the SMIV international workshop, organised by Vedecom institute, Paris, November 13, 2019.

Fawzi Nashashibi: *Connected Autonomous Vehicles: next challenges*, Keynote speaker, at the IEEE CIS-RAM conference, Bangkok (Thailand), November 18-20, 2019.

9.1.4. Scientific Expertise

Guy Fayolle is scientific advisor and associate researcher at the *Robotics Laboratory of Mines ParisTech*. He is also collaborating member of the research-team SPECFUN at Inria-Saclay.

Jean-Marc Lasgouttes is member of the Inria *Commission d'Evaluation* of Inria and of the *Conseil Académique* of Université Paris-Saclay.

Gérard Le Lann: Contribution to White Book on Cybersecurity: current challenges and Inria's research directions, Section 6.3.2 on Robotics and connected autonomous vehicles, February 2019.

Fawzi Nashashibi is an associate researcher at the *Robotics Laboratory, Mines ParisTech*. He is an evaluator/reviewer of European H2020 projects.

Anne Verroust-Blondet was a member of the CRCN Recruiting Commission of the CRI Paris in 2019.

9.1.5. Research Administration

Jean-Marc Lasgouttes is a member of the *Comité Technique Inria* and of the *Comité Local Hygiène Sécurité et Conditions de Travail* of Inria Paris.

Guy Fayolle is a member of the working group IFIP WG 7.3.

Fawzi Nashashibi is a member of the international Automated Highway Board Committee of the TRB (AHB30).
He is a member of the Board of Governors of the VEDECOM Institute representing Inria and of the Board of Governors of MOV'EO Competitiveness cluster representing Inria. He is also member of the DAS-SMI of MOV'EO cluster.

Anne Verroust-Blondet is the scientific correspondent of the European affairs and of the International Partnerships for Inria Paris. She was a member of the COST-GTRI committee at Inria (Committee in charge of the evaluation of international projects) and a member of the "emplois scientifiques" committee of Inria Paris in 2019.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Primary school: Raoul de Charette, "Introduction à l'intelligence artificielle", 10h, -, Puck et Ribambelle, Castelnau-le-Lez, France.

Licence: Fawzi Nashashibi, "Programmation avancée", 84h, L1, Université Paris-8 Saint-Denis, France.

Engineering, 2nd year: Fawzi Nashashibi, "Image synthesis and 3D Infographics", 12h, M2, INT Télécom SudParis, IMA4503 "Virtual and augmented reality for autonomy".

Master: Jean-Marc Lasgouttes, "Analyse de données", 54h, second year of Magistère de Finance (M1), University Paris 1 Panthéon Sorbonne, France.

Master: Jean-Marc Lasgouttes, "Analyse de données", 52.5h, Master 1 SIC APP, University Paris 1 Panthéon Sorbonne, France.

Master: Kaouther Messaoud, "Machine learning 1", 22h (TP), M1, ESIEE, Paris.

Master: Fawzi Nashashibi, "Obstacle detection and Multisensor Fusion", 4h, M2, INSA de Rouen.

Master: Fawzi Nashashibi, "Perception and Image processing for Mobile Autonomous Systems", 12h, M2, University of Evry.

Mastere : Raoul de Charette, "Scene Understanding with Computer Vision", 20h, post master, Mines ParisTech, France.

Doctorat: Jean-Marc Lasgouttes, "Introduction au Boosting", 10.5h, Mastère Spécialisé "Expert en sciences des données", INSA-Rouen, France.

9.2.2. Supervision

PhD: Pierre de Beaucorps, "Planification de trajectoire dans un environnement peu contraint et fortement dynamique", UPMC Sorbonne University, July 2019, supervisor: Anne Verroust-Blondet, co-supervisor: Fawzi Nashashibi.

PhD: Danut Ovidiu Pop, "Multi-Task Cross-Modality Deep Learning for Pedestrian Risk Estimation", INSA Rouen, November 2016, supervisor: Abdelaziz Bensrhair, co-supervisor: Fawzi Nashashibi.

PhD in progress: Farouk Ghallabi, "Environment modeling and simultaneous localization of a mobile vehicle on motorways: a multi-sensor approach", Mines ParisTech, PSL Research University, October 2016, supervisor: Fawzi Nashashibi.

PhD in progress: Maximilian Jaritz, "Perception multi-capteur pour la conduite autonome grâce à l'apprentissage profond", Mines ParisTech, PSL Research University, January 2017, supervisor: Fawzi Nashashibi, co-supervisor: Raoul de Charette.

PhD in progress: Imane Matout, "Estimation de l'intention des véhicules pour la prise de décision et le contrôle sans faille en navigation autonome", Mines ParisTech, PSL Research University, December 2017, supervisor: Fawzi Nashashibi, co-supervisor: Vicente Milanés.

PhD in progress: Kaouther Messaoud, "Détermination des manoeuvres et des intentions des véhicules avoisinant un véhicule autonome", UPMC Sorbonne University, October 2017, supervisor: Anne Verroust-Blondet, co-supervisors: Fawzi Nashashibi, Itheri Yahiaoui.

PhD in progress: Fabio Pizzati, "Style transfer and domain adaptation for semantic segmentation, PSL Research University and University of Bologna, November 2019, co-supervisors: Andrea Prati, Stefano Selleri, Fawzi Nashashibi and Raoul de Charette.

PhD in progress: Renaud Poncelet, "Navigation autonome en présence d'obstacles fortement dynamiques au mouvement incertain", UPMC Sorbonne University, September 2018, supervisor: Anne Verroust-Blondet, co-supervisor: Fawzi Nashashibi.

PhD in progress: Luis Roldao, "Modélisation 3D de l'environnement et de la manoeuvrabilité d'un véhicule", UPMC Sorbonne University, October 2017, supervisor: Anne Verroust-Blondet, co-supervisor: Raoul de Charette.

9.2.3. Juries

Fawzi Nashashibi was a reviewer of the HDR thesis of Mr. Romuald Aufrère - *Systèmes de perception bayésienne pour la robotique mobile : application à la localisation de véhicules*, Université Clermont-Ferrand, July 10, 2019.

Fawzi Nashashibi was a reviewer of the PhD thesis of Mrs. Laurène Claussmann - *Motion Planning for Autonomous Highway Driving: A Unified Architecture for Decision-Maker and Trajectory Generator*, Université Versailles, September 27, 2019.

Fawzi Nashashibi was a reviewer of the PhD thesis of Mr. Mohamed-Taha Boudali - *Contributions au guidage d'un véhicule autonome en situations non conventionnelles de conduite*, Université Mulhouse, September 25, 2019.

Fawzi Nashashibi was a jury member of the PhD thesis of Mr. David Pérez Morales - *Multi-sensor-based control in Intelligent Parking applications*, Université Nantes, December 6, 2019.

Fawzi Nashashibi was a reviewer of the PhD thesis of Mr. Mathieu Barbier - *Crossing of Road Intersections: Decision-Making Under Uncertainty for Autonomous Vehicles*, Université Grenoble Alpes, December 11, 2019.

Anne Verroust-Blondet was a jury member of the PhD thesis of Mr. David Sierra Gonzalez - *Towards Human-Like Prediction and Decision-Making for Automated Vehicles in Highway Scenarios*, Université Grenoble Alpes, 1 April 2019.

Anne Verroust-Blondet was a reviewer of the PhD thesis of Mr. Hernan Gonzalez - *Complex Dynamic scene analysis through multi-body motion segmentation - application to intelligent vehicles*, Université Paris-Saclay, 13 December 2019.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- Fawzi Nashashibi was audited by a joint committee from the Parliament-Senat and cited in a OPECST report titled *"End of thermal vehicles in 2040: what realistic scenarios"*. Authors: Mrs. Huguette Tiegna (Parliament Deputy, Vice President) and Mr. Stéphane Piednoir (Senator). ISSN: 1249-3872.

- Participation of several team members to PAC V2X "Forum des acteurs" through oral scientific presentations - Paris, September 11, 2019.

- Participation of several team members in oral presentations and demonstrations with real mobile platforms during the *Journées du Patrimoine (Heritage Days)*, Rocquencourt, September 21, 2019.

9.3.2. Articles and contents

Fawzi Nashashibi was interviewed by Eric Gibory in *Le Monde*[0]: "Flottes d'entreprise : "De nouveaux services pour la voiture connectée vont apparaître avec la 5G"", October 24th 2019.

Fawzi Nashashibi was interviewed by Muriel Jaoën in *Les Echos*[0]: "Le véhicule autonome en site ouvert ? Pas avant 2050", February 8th 2019.

9.3.3. Interventions

Raoul de Charette: *What is the limitation of artificial intelligence ?*, Arbre des Connaissances, Paris, France, February 12th 2019.

Raoul de Charette: *Dangers de l'intelligence artificielle ?*, Crégy-lès-Meaux, France, March 2019.

Raoul de Charette: *Qu'est-ce que l'intelligence artificielle ?*, Oissery, France, May 28th 2019.

Raoul de Charette: *Intelligence artificielle*, Arbre des Connaissances, Paris, France, June 17th 2019.

Fawzi Nashashibi: panelist, round table on the "Vehicle of the Future", Maison de la Recherche, Paris, April 2019.

Fawzi Nashashibi: panelist, round table on the "Autonomous Vehicle", Centrales-Supélec, Paris, September 16, 2019.

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[0](https://www.lemonde.fr/economie/article/2019/10/24/flottes-d-entreprise-de-nouveaux-services-pour-la-voiture-connectee-vont-apparaitre-avec-la-5g_6016755_3234.html)

[0](https://www.lesechos.fr/tech-medias/intelligence-artificielle/fawzi-nashashibi-le-vehicule-autonome-en-site-ouvert-pas-avant-2050-963047)

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SEMAGRAMME Project-Team

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9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

- Karën Fort co-organized of the first enetCollect (European Network for Combining Language Learning with Crowdsourcing Techniques) hackathon

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Philippe de Groote: Chair of the 16th Meeting on the Mathematics of Language [24].
- Sylvain Pogodalla: co-chair of FG 2019 23rd Conference on Formal Grammar [23].

9.1.2.2. Member of the Conference Program Committees

- Philippe de Groote: Senior PC member of: IJCAI 2019, the 28th International Joint Conference on Artificial Intelligence; PC member of: SCiL 2020, the third meeting of the Society for Computation in Linguistics; WOLLIC 2019, the 26th Workshop on Logic, Language, Information and Computation; IWCS 2019, the 13th International Conference on Computational Semantics ; FG'19, the 24th Conference on Formal Grammar; SPE 11, the 11th Semantics and Philosophy in Europe Colloquium.

9.1.2.3. Reviewer

- Maxime Amblard: 13th International Conference on Computational Semantics (IWCS 2019), IJCAI 2019, TALN 2019, JPC2019.
- Karën Fort: ACL 2019, NAACL 2019, TALN 2019, CJC-Praxiling 2019. *La fabrique de la participation culturelle. Plateformes numériques et enjeux démocratiques*
- Sylvain Pogodalla: 13th International Conference on Computational Semantics (IWCS 2019), Logic and Engineering of Natural Language Semantics 16 (LENLS16).

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Maxime Amblard: Member of the editorial board of the journal *Traitement Automatique des Langues*, in charge of the hard copy editorial process,
- Philippe de Groote: area editor of the *FoLLI-LNCS series*.
- Sylvain Pogodalla: Member of the editorial board of the journal *Traitement Automatique des Langues*, in charge of the *Résumés de thèses* section.

9.1.3.2. Reviewer - Reviewing Activities

- Maxime Amblard: Logic and Algorithms in Computational Linguistics, Springer series Studies in Computational Intelligence (SCI)
- Philippe de Groote: Journal of Language, Logic and Information; Journal of Logic and Computation; Logical Methods in Computer Science.
- Sylvain Pogodalla: Journal of Language, Logic and Information.

9.1.4. Invited Talks

- Karën Fort:

- *La production participative (crowdsourcing) : miroir grossissant sur l'annotation manuelle.* Inria Almanach. Paris, France. October 11th 2019
- *Productions participatives de corpus annotés : des modèles encore incertains.* Colloque Jeunes Chercheurs PRAXILING 2019
- with Denis Maurel. *Regards croisés sur la linguistique informatique.* Colloque Décrire une langue : objectifs et méthodes. Sorbonne Université, Paris, France. September 13th 2019

- Michel Musiol:
  - *Improving the investigation of conversational discontinuities using the support of eye-tracking methods.* Workshop on Incoherence of Dialogue, University of Göteborg, 2019, october 9-10th
  - *Approche différentielle des registres communicationnels de l'interlocuteur schizophrène dans l'entretien clinique*, Faculté de Médecine and Centre Hospitalo-Universitaire of Tizi Ouzou, Algeria, June 13th.

- Bruno Guillaume:
  - *Rigor Mortis* EnetCollect 3rd Annual Action meeting in Lisbon, March 14th. The game Rigor Mortis ((http://rigor-mortis.org) is a crowdsourcing projet when users have to find Multi-Word expression.

9.1.5. Leadership within the Scientific Community

- Maxime Amblard: Management Committee of the OLKI project (*Lorraine Université d'Excellence* project - PIA), co-leader of the workpackage 2 on NLP activities.
- Karën Fort:
  - Management Committee member of the COST Action CA16105 "European Network for Combining Language Learning with Crowdsourcing Techniques" (http://www.cost.eu/COST_Actions/ca/CA16105).
  - Management Committee Substitute member of the COST Action CA18209 "European network for Web-centred linguistic data science" (http://www.cost.eu/COST_Actions/ca/CA18209).
  - in charge with G. Wisniewski of axis 2 of GDR LIFT (*Linguistique informatique, formelle et de terrain*) : *Linguistique et évaluation des systèmes de traitement automatique des langues*. Kick off meeting at the end of Nov., Orléans, France, co-organized (with A. Millour, SU) a working group on variations in GDR LIFT

- Philippe de Groote: president of SIGMOL, *Association for Mathematics of Language, a Special Interest Group of the Association for Computational Linguistics*; member of the LACL steering committee.
- Bruno Guillaume: Management Committee Substitute member of the COST Action CA16105 "European Network for Combining Language Learning with Crowdsourcing Techniques" (http://www.cost.eu/COST_Actions/ca/CA16105).
- Sylvain Pogodalla: member of the LACL steering committee; member of the Formal Grammar standing committee.

9.1.6. Scientific Expertise

- Philippe de Groote: member of the scientific council of the AREN e-FRAN project, *ARgumentation Et Numérique*.
- Sylvain Pogodalla: expert for the Research Executive Agency (REA) of the EU.

9.1.7. Research Administration

- Maxime Amblard:

– Member of *conseil scientifique* of *Université de Lorraine*

– Standing invitee at the *pôle scientifique* AM2I of *Université de Lorraine*

– Member of the *Sénat Académique* of *Université de Lorraine*

– Member of the progress commission of *Université de Lorraine*

– Member of the administration council of the *Institut des sciences du digital, management et cognition*

– Member of the board of the *Maison des sciences de l'homme*, MSH-Lorraine

– Head of the master in Natural Language Processing (master 1 and 2)

- Philippe de Groote:

  – Member of the *bureau du comité des projets d'Inria Nancy – Grand Est*.

  – Member of the scientific council of the LIRMM, *Laboratoire d'Informatique, de Robotique et de Microélectronique de Montpellier*

- Bruno Guillaume:

  – Head of the Loria department NLPKD (Natural Language Processing and Knowledge Discovery).

  – Leader of the CPER 2015-2020 project *Langues, Connaissances et Humanités Numériques* (Languages, Knowledge and Digital Humanities) in which ten laboratories of *Université de Lorraine* participate.

  – Member of the Comipers (committee for PhD and Post-doctoral selection).

- Michel Musiol:

  – Member of the McF selection committee 1231/4381 (section 16), *Université de Reims Champagne-Ardenne*

  – Member of the McF selection committee 739 (section 16), *Aix-Marseille Université*

- Sylvain Pogodalla:

  – Elected member of the *comité de centre d'Inria Nancy – Grand Est*,

  – in charge of the *commission IES (information et édition scientifique du centre d'Inria Nancy – Grand Est*.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence:

Maxime Amblard, NLP Introduction, 4h, L1, Université de Lorraine, France

Maxime Amblard, Linguistic engineering, 20h, L3, Université de Lorraine, France

Maria Boritchev, Formalisms and reasoning representations , 20h, L3, Université de Lorraine, France

Maria Boritchev, Algorithmic 1, 22h, L1, Université de Lorraine, France

Master:

Maxime Amblard, Python Programming (english), 30h, M1 NLP, Université de Lorraine, France.

Maxime Amblard, Methods for NLP (english), 36h, M1 NLP, Université de Lorraine, France.

Maxime Amblard, Formalisms (english), 24h, M2 NLP, Université de Lorraine, France.

Maxime Amblard, Discourse and Dialogue (english), 18h, M2 NLP, Université de Lorraine, France.

Philippe de Groote, Formal Logic, 22h, M1 NLP, Université de Lorraine, France.

Philippe de Groote, Formal languages, 22h, M1 NLP, Université de Lorraine, France.

Philippe de Groote, Computational Semantics, 18h, M2 NLP, Université de Lorraine, France.

Philippe de Groote, Computational structures and logics for natural language modeling, 18h, M2 NLP, Université Paris Diderot – Paris 7, France.

Bruno Guillaume, Written Corpora TAL (english), 30h, M1 NLP, Université de Lorraine, France.

9.2.2. Supervision

PhD defended:

- Timothée Bernard, *Approches formelles de l'analyse du discours : relations discursives et verbes d'attitude propositionnelle*, September 1st 2019

PhD in progress:

William Babonnaud, *Lexical semantics, compositionality and type coercion*, since September 2018, Philippe de Groote.

Clement Beysson, *Dynamic generalized quantifiers for discourse analysis*, since September 2015, Philippe de Groote and Bruno Guillaume.

Maria Boritchev, *Dialogue Dynamics Modeling in the Simple Theory of Types*, since September 2017, Maxime Amblard and Philippe de Groote.

Pierre Ludmann, *Dynamic construction of discursive structures*, since September 2017, Philippe de Groote and Sylvain Pogodalla.

Chuyuan Li, *Formal and statistical modeling of dialogue*, since October 2019, Maxime Amblard and Chloé Braud.

Vincent-Thomas Barrouillet, *Towards an automated formalization of logical deviations of pathological discourse from schizophrenic patients*, since October 2019, Maxime Amblard and Michel Musiol.

Samuel Buchel, *Linguistic, semantic and cognitive modelling of dialogical incongruities and discontinuities in the interaction with the schizophrenic patients*, since December 2019, Maxime Amblard and Michel Musiol.

9.2.3. Juries

- Karën Fort was member of the jury PhD thesis of:
  - Claire Wolfarth, Université Grenoble Alpes. December 9th.
  - Arne Skjærholt, Oslo University. First opponent. December 4th.
  - Ivan Garrido Marquez, Université Paris 13. February 8th.
- Michel Musiol
  - Yann Auxemery, Université de Lorraine, October 15th
  - Aurore Morel, Université de Lyon 1 Claude Bernard, December 20th

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

Maxime Amblard is the vice head of editorial board of Interstices.info

9.3.2. Articles and contents

- Karën Fort: 3 articles in volume 140 of *Culture et Recherche* (Journal of the Ministry of Culture):

- Ouvrir le dédale des données des recherches myriadisées (with Lisa Chupin, Université Paris-Descartes)
- Les jeux ayant un but : des sciences participatives ? (with Bruno Guillaume)
- Sciences participatives et diversité linguistique : retours d'expériences (with Alice Millour, Sorbonne Université)

9.3.3. Interventions

Maxime Amblard was an organizer of the *Forum des Sciences Cognitives* in Nancy

Maxime Amblard organized a Diabolo Science presentation with Marie Duflot-Kremer for PintOf-Science

Maxime Amblard gave a presentation for high school students in the laboratory

Karën Fort: ethics and citizen science class at the Museum national d'histoire naturelle (3h)

9.3.4. Creation of media or tools for science outreach

Maxime Amblard was the leader of the project Happy Family Cards Game, which aimed to develop such a game for promoting computer science as a scientific field. 20 000 copies have been printed and are currently being distributed. The project was presented at the Fête de la Science panel in Paris.

Maxime Amblard designed an unplugged activity on syntactic parsing (about rabbits and carrots), [25].

Karën Fort: participation in the Sorbonne Université portal for citizen science with ZombiLUDik and Recettes (with A. Millour) : https://www.science-ensemble.org/

<h1 style="text-align: center; color: red;">SIROCCO Project-Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- C. Guillemot has organized, as chair, the ERC-CLIM workshop, May 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- C. Guillemot has been member of the international steering committee of the Picture Coding Symposium (PCS), 2019.
- C. Guillemot has been member of the technical programme committee of IEEE-ICASSP 2019.
- C. Guillemot has been a member of the technical program committee of the CVPR 2019 workshop on New Trends in Image Restoration and Enhancement (NTIRE), 2019.
- A. Roumy has been a member of the technical program committee of the CVPR 2019 workshop on New Trends in Image Restoration and Enhancement (NTIRE).
- A. Roumy has been a member of the technical program committee of the IEEE International Conference on Communications (ICC) 2019, Workshop on Machine Learning in Wireless Communications (ML4COM).
- A. Roumy has been a member of the technical program committee of the IEEE Wireless Communications and Networking Conference 2019 (IEEE WCNC).
- A. Roumy has been a member of the technical program committee of the International conference on Telecommunications (ICT) 2019.
- A. Roumy has been a member of the technical program committee of the Gretsi 2019 conference, organized by the National Research group in Image and Signal Processing.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- C. Guillemot is senior area editor of the IEEE Trans. on Image Processing.
- C. Guillemot is associate editor of the International Journal on Mathematical Imaging and Vision.
- T. Maugey is associate editor of the EURASIP Journal on Advances in Signal Processing (since Dec 2019).
- A. Roumy is associate editor of the Springer Annals of Telecommunications.
- A. Roumy is associate editor of the IEEE Trans. on Image Processing.

10.1.4. Invited Talks

- C. Guillemot gave a keynote talk on Light field image processing, at the Digital Optical Technologies International Conference, Munich, June 24-27, 2019.
- Thomas Maugey gave a seminar at IRISA's days on Art, Culture and Heritage, Rennes, France, "Data acquisition and compression for user immersion in a virtual scene" (Jan. 2019).
- Thomas Maugey gave a seminar at Orange Labs. PhD days, Rennes, France, "Light Field Acquisition and Depth estimation" (Mar. 2019).

- Thomas Maugey gave a seminar at GdR-Isis, Rennes, France, "Data acquisition and compression for user immersion in a 3D scene" (Mar. 2019).
- A. Roumy gave a talk on "Learning transforms for image compression", workshop on Learning for unstructured data, Univ. Paris 13, Nov. 2019.

10.1.5. Leadership within the Scientific Community

- C. Guillemot is member of the IEEE Signal Processing Society Nominations and Appointments Committee for a two-year term.
- A. Roumy is member of the IEEE IVMSP technical committee.
- A. Roumy is a Local Liaison Officer for the European Association for Signal Processing (EURASIP).
- A. Roumy is a member of the Executive board of the National Research group in Image and Signal Processing (GRETSI).

10.1.6. Scientific Expertise

- C. Guillemot has served as expert in a research proposal selection committee of the Irish Research Council, Feb. 2019.
- C. Guillemot is responsible of the theme « compression et protection des données images » for the realization of the encyclopedia SCIENCES of the publisher ISTE/Wiley (2019-2021).

10.1.7. Research Administration

- C. Guillemot is member of the "bureau du Comité des Projets".
- C. Guillemot has served as a member of the selection committee of a Prof. at the National University of Ireland (NUI), Galway, Ireland, Feb. 2019.
- C. Guillemot has served as a member of the selection committee of a Prof. at the Technical Univ. of Denmark, May 2019.
- A. Roumy is a member of Inria evaluation committee.
- A. Roumy has served as a member of the selection committee of an Assistant Prof. at University Paris 13 (May 2019).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: C. Guillemot, Image and video compression, 10 hours (2018-2019), and advanced video processing, 4 hours (2018-2019), M2 SISEA, Univ. of Rennes 1, France.
- Undergraduate: L. Guillo, course of 35 hours on Functional immutable programming, 1st year of Mathematiques, Informatique, Electronique, mathematique-Economie" (MIEE), Univ. of Rennes 1
- Master: T. Maugey, course on 3D models in a module on advanced video, 4 hours (2018-2019), 12 hours (2019-2020), M2 SISEA, Univ. of Rennes 1, France.
- Master: T. Maugey, course on Image compression, 10 hours (2019-2020), M2 SISEA, Univ. of Rennes 1, France.
- Master: T. Maugey, course on Representation, editing and perception of digital images, 12 hours, M2 SIF, Univ. of Rennes 1, France.
- Engineering degree: A. Roumy, Sparse methods in image and signal processing, 13 hours, INSA Rennes, 5th year, Mathematical engineering, France.
- Master: A. Roumy, Foundations of smart sensing, 18 hours, ENSAI, Master of Science in Statistics for Smart Data, France.
- Master: A. Roumy, Information theory, 15 hours, University Rennes 1, SIF master, France.

10.2.2. *Juries*

- C. Guillemot has been reviewer of the PhDs of:
    - B. Ray, UNiv. Poitiers, March 2019
    - T. Trinh Le, Univ. Paris Saclay, June 2019
    - Z. Chen, Chinese Univ. of Hong Kong, June 2019
    - D. Tsai, Queensland Univ. of Technology (QUT), Nov. 2019
    - M. De Pinheiro Carvalho, Univ. Paris Saclay, Nov. 2019
- C. Guillemot has been member of the PhD committees of:
    - M. Bichon, Univ. Rennes 1, March 2019
    - C.A. Noury, Univ. Clermond Ferrand, Nov. 2019
    - S. Manandhar, Univ. Rennes 1, Nov. 2019
- Aline Roumy has been reviewer of the PhDs of:
    - Shuo Zheng, Univ. Paris Saclay, prepared at Telecom ParisTech, Feb. 2019
    - Mohsen Abdoli , Univ. Paris Saclay, prepared at Univ. Paris Sud, June 2019
    - David Kibloff , Univ. Lyon, prepared at Insa Lyon, Sept. 2019
- Aline Roumy has been member of the PhD committees of:
    - Yigit Ugur, Univ. Paris Est, Nov. 2019
    - Fangping Ye, IMT Atlantique, Brest, Dec. 2019

10.3. Popularization

10.3.1. *Internal or external Inria responsibilities*

- C. Guillemot is responsible of the theme « compression et protection des données images » for the realization of the encyclopedia SCIENCES of the publisher ISTE/Wiley (2019-2021).

<p align="center">Stars Project-Team</p>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Elisabetta De Maria was General chair of the international conference CsBio 2019 (10th International Conference on Computational Systems-Biology and Bioinformatics), Nice, France.

9.1.1.2. Member of the Organizing Committees

- Antitza Dantcheva, Abhijit Das and François Brémond organized the special session on human health monitoring based on computer vision at the 14th IEEE International Conference on Automatic Face and Gesture Recognition (FG'19).

- Antitza Dantcheva co-organized the Robust Tattoo Detection and Retrieval Competition (RTDRC 2019) associated to the 10th IEEE International Conferencce on Biometrics: Theory, Applications and Systems (BTAS 2019).

- Antitza Dantcheva co-organized the special session on The Future of Biometrics beyond Recognition and Anti-Spoofing at the 12th IAPR International Conference on Biometrics (ICB'19).

9.1.1.3. Chair of Conference Program Committees

- François Brémond was part of the Organization Committee for the workshop on "Crowd analysis and applications: simulations meet video analytics"

- François Brémond was part of the AVSS'19 Organization Committee

- François Brémond was a Session Chair of AVSS - 17th IEEE International Conference on Advanced Video and Signal-Based Surveillance, Taipei, Taiwan, 18-21 September 2019.

- Elisabetta De Maria was Program chair of the international conference BIOINFORMATICS 2019 (10th International Conference on Bioinformatics Models, Methods, and Algorithms), which is part of BIOSTEC 2019 (12th International Joint Conference on Biomedical Engineering Systems and Technologies), Prague, Czech Republic.

- Elisabetta De Maria was Program chair of the international conference CsBio 2019 (10th International Conference on Computational Systems-Biology and Bioinformatics), Nice, France.

- Antitza Dantcheva was program Co-chair at the International Conference of the Biometrics Special Interest Group (BIOSIG) 2019, Darmstadt, Germany.

9.1.1.4. Member of the Conference Program Committees

- Monique Thonnat was program committee member of the conference ICPRAM 2020.

- Elisabetta De Maria was member of the program committee of the ICML Workshop on Computational Biology 2019, Long Beach, CA, USA.

9.1.1.5. Reviewer

- François Brémond was reviewer for the conferences: CVPR2019-20, ICCV2019, ICPRS-19, ICDP19, WACV 2020, AVSS19.

- François Brémond was reviewer for the Journal: IEEE International Conference on Systems, Man, and Cybernetics (SMC), IET Computer Vision, IEEE Transactions on Circuits and Systems for Video Technology

- Antitza Dantcheva was reviewer for IEEE Transactions on Information Forensics and Security (TIFS), IEEE Transactions on Biometrics, Behavior, and Identity Science (T-BIOM), IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), Pattern Recognition and Neurocomputing.

- Srijan Das was reviewer for KCST 2019, ICAML 2019, AVSS 2019 and WACV 2020.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- François Brémond was handling editor of the international journal "Machine Vision and Application".

- François Brémond was handling editor for the MDPI special issue sensors Deep Learning for multi-sensor fusion.

- Elisabetta De Maria was guest editor of the JBCB journal (Journal of Bioinformatics and Computational Biology) for the review process of selected papers for the special issue on the conference BIOINFORMATICS 2019.

- Antitza Dantcheva has been in the Editorial Board of the Journal Multimedia Tools and Applications (MTAP) since 2017.

9.1.3. Invited Talks

- François Brémond was invited at the Data Science Riviera to give the talk "Cross domain residual transfer learning for person re-identification" in April 2019.

- François Brémond was invited to give a keynote speech on people tracking at the T4S Workshop in AVSS Taipei, 21 September 2019.

- François Brémond was invited in HealthCare and AI CITEDI at Tijuana, 23 August 2019.

- Monique Thonnat was invited as Speaker on AI and Health session to the CEO Forum at VivaTech, Paris, 16 May 2019.

- Monique Thonnat was invited to give a talk entitled Where to Focus on for Human Action Recognition? at the Franco-Mexican workshop on AI, Mexico, 27-29 August 2019.

- Monique Thonnat was invited by TEC Monterey for to give a talk on AI for Daily Living Activity recognition from videos at the AI Hub Launch, Guadalajara, 27 November 2019.

- Elisabetta De Maria was invited at *School of Electrical Engineering and Computer Science*, University of Ottawa, Canada in June 2019. Title of the talk: Parameter Learning for Spiking Neural Networks Modelled as Timed Automata.

- Elisabetta De Maria was invited at *Center of Modeling, Simulation, and Interactions (MSI)*, Université Côte d'Azur, France in September 2019. Title of the talk: Parameter Learning for Spiking Neural Networks Modelled as Timed Automata.

- Srijan Das was invited at the Data Science Riviera to give the talk "Spatio-temporal attention mechanism for Activities of Daily Living" in November.

- S L Happy was invited at the Data Science Riviera to give the talk "Apathy diagnosis by analyzing facial dynamics in videos" in April.

- Abhijit Das was invited at the Data Science Riviera to give the talk "Robust face analysis employing machine learning techniques for remote heart rate estimation and towards unbiased attribute analysis" in January.

9.1.4. Leadership within the Scientific Community

- François Brémond was part of the Evaluation Committee for new Inria team creation, Chorale.

- François Brémond was part of the Evaluation Committee for PINZ Axel research application for Austrian Science Fund.

- Monique Thonnat is member of the scientific board of ENPC, Ecole Nationale des Ponts et Chaussées since June 2008.
- Jean-Paul Rigault is an ISO C++ expert and the head of the French delegation at the ISO C++ standardization committee.
- Antitza Dantcheva serves in the Technical Activities Committee of the IEEE Biometrics Council since 2017
- Antitza Dantcheva serves in the EURASIP Biomedical Image & Signal Analytics (BISA) SAT 2018-2021
- Antitza Dantcheva is member of the European Reference Network for Critical Infrastructure Protection (ERNCIP), Thematic Group Extended Virtual Fencing - use of biometric and video technologies, since 2017
- Antitza Dantcheva is member of the European Association for Biometrics, since 2018

9.1.5. *Scientific Expertise*

Elisabetta De Maria was facilitator of the brainstorming of the strategic axis "Humain-Biologie" during the meeting of the I3S Laboratory, Fréjus, France.

9.2. Teaching - Supervision - Juries

9.2.1. *Teaching*

Stars Team members (e.g. François Brémond) gave the class Master Data Science M2 in *Computer Vision and Deep Learning* from December 10, 2019 to February 25, 2020.

http://www-sop.inria.fr/members/Francois.Bremond/MSclass/deepLearningWinterSchool/index.html

9.2.2. *Supervision*

- PhD: U. Ujjwal, "Pedestrian detection to dynamically populate the map of a crossroad" [12], Thèses, Université Côte d'Azur, November 2019.
- PhD: I. Sarray, "Conception de systèmes de reconnaissance d'activités humaines" [11], Thèses, Université Côte d'Azur, March 2019.

  PhD in progress: Srijan Das, "Action recognition of daily living activities from RGB-D videos", 2017, PhD codirected 50% François Brémond and Monique Thonnat.

  PhD in progress: Yaohui Wang, 2017, "Automated holistic human analysis", Antitza Dantcheva.

  PhD in progress: Jen-Cheng Hou: "Quantified video analysis of seizure semiology in epilepsy", 2018, PhD codirected 50% Monique Thonnat and Prof. Fabrice Bartolomei, PU-PH AMU/Inserm.

  PhD in progress: Juan Diego Gonzales Zuniga, 2018, "People Tracking using Deep Learning algorithms on embedded hardware", 70% François Brémond and 30% Serge Tissot (Fellowship CIFRE - Kontron).

  PhD in progress: Thibaud L'Yvonnet, "Relations between human behaviour models and brain models - Application to serious games", 2018, Sabine Moisan and Elisabetta De Maria.

  PhD in progress: Hao Chen, 2019, "People Re-identification using Deep Learning methods", 70% François Brémond and 30% Benoit Lagadec (Fellowship CIFRE - ESI).

  PhD in progress: Rui Dai, 2019, "Action Detection for Untrimmed Videos based on Deep Neural Networks", François Brémond.

  Abdorrahim Bahrami, "Modelling and verifying dynamical properties of biological neural networks in Coq", Elisabetta De Maria.

Srijan Das was mentor for the Emerging Technology Business Incubator (ETBI) Led by NIT Rourkela, a platform envisaged transforming the start-up ecosystem of the region.

Srijan Das mentored for B.E.N.J.I. in GirlScript Summer of Code 2019 edition.

9.2.3. Juries

- François Brémond was jury member of Tenure Track Selection: committee member for permanent position, COS informatique, Lyon 2 University, 6 May 2019
- François Brémond was jury member for habilitation, Anthony Fleury, Lille University, 20 February 2019
- François Brémond was jury member for habilitation, Stefan Duffner, Lyon University, 5 April 2019
- François Brémond was jury member of the mid-term review for 6 PhDs - Nicolas Girard (May 3rd, 2019), Melissa Sanabria (May 21st, 2019), Lucas Pascal (July 11, 2019), Claire Labit (October 8, 2019), Renato Baptista (January 17 and August 28, 2019), Magali PAYNE (December 3, 2019).
- François Brémond was jury member of the following PhD theses:

    PhD, Jennifer Vandoni, Université de Paris Saclay, Saclay, 14 May 2019.

    PhD, Amr Alyafi, Grenoble Institute of Technology, 27 May 2019.

    PhD, Cristiano Massaroni, La Sapienza University in Rome, 13 December 2019.

- Monique Thonnat was reviewer for the PhD defense of Florent Lefevre, University of Lorraine, 4 December 2019
- Monique Thonnat was president for the PhD defense of Danny Francis, Sorbonne Université, 12 December 2019
- Jean-Paul Rigault was president of the HDR jury of Julien Deantoni.
- Elisabetta De Maria was member of the Ph.D. proposal defence jury of Abdorrahim Bahrami, University of Ottawa, Canada. Title of the thesis: Verifying Dynamic Properties of Neural Networks in Coq.
- Antitza Dantcheva was reviewer for the PhD defense of Mohamed Abdul Cader, Queensland University of Technology, Australia.

9.3. Popularization

9.3.1. Articles and contents

- François Brémond was interviewed for *Web Interview* on Facial recognition: limits and challenges for society, 16 Oct 2019.
- François Brémond was interviewed for *Graphical novel* about the challenges of AI, 29 Oct 2019.
- Antitza Dantcheva was interviewed for an article in *Science et Vie* on facial analysis in October 2019.
- Antitza Dantcheva was interviewed for an article in *Charlie Hebdo* on facial recognition in February 2019.

9.3.2. Interventions

- François Brémond, Thibaud L'Yvonnet, David Anghelone and Sandrine Boute represented STARS on the 19 October at the *La fête de la science* in Palais des Congrès d'Antibes Juan-les-Pins.
- STARS presented demos for Unlimitech Sport, Lyon, 18-21 September 2019.

<p align="center">**THOTH Project-Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- C. Schmid is a general chair for ECCV 2020, ICCV 2023.

10.1.1.2. Member of the Organizing Committees

- K. Alahari and J. Mairal co-organized the international summer school PAISS 2019.
- J. Mairal is a member of the organizing committee for the international conference SIAM Imaging Science 2020.
- J. Mairal is a co-organizer of the workshop OSL'19 at Les Houches.
- J. Mairal co-organized a discussion session at the Ellis/Dali workshop, San Sebastian, 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- K. Alahari: area chair for CVPR 2020, ICCV 2019.
- K. Alahari: senior program committee member for AAAI 2020, IJCAI 2019, IJCAI 2020.
- K. Alahari: doctoral consortium chair for ICCV 2023.
- J. Mairal: area chair for NeurIPS 2019, AISTATS 2020 and ECCV 2020.
- J. Mairal: tutorial chair for CVPR 2022.
- C. Schmid: area chair for ICCV 2019.
- C. Schmid: senior area chair for NeurIPS 2019.
- J. Verbeek: area chair for ICCV 2019.

10.1.2.2. Reviewer

The permanent members, postdocs and senior PhD students of the team reviewed numerous papers for international conferences in artificial intelligence, computer vision and machine learning, including AAAI, AISTATS, CVPR, ICCV, ICML, ICLR, NeurIPS in 2019.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- K. Alahari: Associate editor of the International Journal of Computer Vision, since 2019.
- K. Alahari: Associate editor for Computer Vision and Image Understanding journal, since 2018.
- J. Mairal: Associate editor of the Journal of Machine Learning Research (JMLR), since 2019.
- J. Mairal: Associate editor of the International Journal of Computer Vision, since 2015.
- J. Mairal: Associate editor of Journal of Mathematical Imaging and Vision, since 2015.
- J. Mairal: Associate editor of the SIAM Journal of Imaging Science, since 2018.
- J. Verbeek: Associate editor International Journal on Computer Vision, 2014-2019.
- J. Verbeek: Associate editor IEEE Transactions Pattern Analysis and Machine Intelligence, since 2018.

10.1.3.2. Reviewer - Reviewing Activities

The permanent members, postdocs and senior PhD students of the team reviewed numerous papers for international journals in computer vision (IJCV, PAMI, CVIU), machine learning (JMLR, Machine Learning). Some of them also review for other reputed journals such as PLOS ONE, SIAM Journal on Optimization, SIAM Imaging Science.

10.1.4. Invited Talks

- K. Alahari: Speaker on the Panel on AI and Mathematics, Knowledge Summit, Lyon, France, 2019.
- K. Alahari: Invited talk, LIAMA workshop, Paris, France, 2019.
- A. Bietti: Invited talk, GIPSA Lab, Grenoble, 2019.
- A. Bietti: Invited talk, UC Berkeley, 2019.
- A. Bietti: Seminar, Microsoft Research AI, Redmond, 2019.
- A. Bietti: Seminar, TTI-Chicago, 2019.
- D. Chen: Machine Learning in Computational Biology (MLCB) workshop on recurrent kernel networks, Vancouver, 2019.
- J. Mairal: Invited talk at the YES workshop, Eindhoven, 2019.
- J. Mairal: Talk in mini-symposium, ICCOPT, Berlin, 2019.
- J. Mairal: Invited talk at the Imaging and Machine Learning conference, IHP, Paris, 2019.
- J. Mairal: Seminar. Centrale Lille, 2019.
- R. Klokov: Invited talk at Christmas Colloquium on Computer Vision, Yandex, Moscow, 2019.
- C. Schmid: Invited speaker at BMVA symposium in Video Understanding, London, September 2019.
- C. Schmid: Keynote speaker at BMVC, Cardiff, UK, September 2019.
- C. Schmid: Keynote speaker at SIGIR, Paris, July 2019.
- C. Schmid: Invited speaker at Computer Vision after 5 Years, in conjunction with CVPR, June 2019.
- C. Schmid: Invited speaker at Tutorial on Unifying Human Activity Understanding, in conjunction with CVPR, June 2019.
- C. Schmid: Invited speaker at Facebook AI Video Summit, June 2019.
- C. Schmid: Keynote speaker at AI Experts Workshop in conjunction with the AI for Good Global Summit, Geneva, May 2019.
- C. Schmid: Invited speaker at Women in Data Science Conference, Zürich, April 2019.
- C. Schmid: Invited speaker at Collège de France seminar (chair of Stephane Mallat), February 2019.
- C. Schmid: Talk at Google EMEA research days, Zurich, December 2019.
- C. Schmid: Talk at Workshop on AI for Robotics, Naver, Grenoble, November 2019.
- C. Schmid: Talk at Workshop, Robotics: A Challenge for the Artificial Intelligence, Toulouse, October 2019.
- C. Schmid: Presentation at PRAIRIE inauguration, Paris, October 2019.
- C. Schmid: Seminar at DeepMind, London, September 2019.
- C. Schmid: Seminar at Intel Network on Intelligent Systems, Munich, September 2019.
- C. Schmid: Seminar at Ellis workshop, September 2019.
- C. Schmid: Seminar at MPI Tübingen, July 2019.
- C. Schmid: Seminar at WILLOW/SIERRA retreat, Marseille, June 2019.
- C. Schmid: Dinner speaker at the workshop "Women in Computer Vision", in conjunction with CVPR'19.
- C. Schmid: Seminar at Google MTV, April 2019.
- C. Schmid: Seminar at ETH Zürich, March 2019.
- J. Verbeek: Invited talk at Breaking the Surface Workshop on maritime robotics and its applications, Biograd na Moru, Croatia, Oct 2019.

- J. Verbeek: Invited talk at Dagstuhl Workshop on Joint Processing of Language and Visual Data for Better Automated Understanding, Germany, Jan 2019.
- D. Wynen: SMILE Reading Group Paris, 2019.

10.1.5. Leadership within the Scientific Community

- J. Mairal, J. Verbeek and C. Schmid became Ellis fellows.
- C. Schmid: Participation in a round table on AI, a technology for innovation, forum 5i, Grenoble, May 2019.
- C. Schmid: Animating several mentorship sessions at Women in Data Science Conference, Zürich, April 2019.
- C. Schmid: Mentor at the Doctoral Consortium, in conjunction with ICCV'19, CVPR'19.
- C. Schmid: Mentor for female PhD students at the workshop "Women in Computer Vision", CVPR'19.

10.1.6. Scientific Expertise

- J. Mairal: Judge for the IBM Watson AI Xprize.
- J. Mairal: Expert for ANR.

10.1.7. Research Administration

- K. Alahari: One of the two referents for Human Resources - Excellence in Research (HRS4R) at Inria Grenoble.
- J. Mairal: Jury member for the Inria starting and advanced research positions.
- C. Schmid: Member of Scientific Advisory Committee of the Helmholtz AI Cooperation Unit, 2020—
- C. Schmid: Member of scientific advisory board for the German Competence Centers for AI Research, 2019—
- J. Verbeek: Member steering committee MinaLogic, innovation cluster for digital technologies based in France's Auvergne-Rhône-Alpes region, 2018-2019.
- J. Verbeek: Scientific correspondent national project calls, Inria Grenoble, 2017-2019.
- J. Verbeek: Member Scientific council Advanced Data Mining axis of Persyval Laboratory of Excellence, Grenoble, 2015-2019.
- J. Verbeek: Member Inria Grenoble working group on HPC - Big Data - Machine learning, 2018-2019.
- J. Verbeek: Member of Inria Commission Administrative Paritaire (advises on matters about individual careers: such as promotions, temporary outsourcing, etc.), 2016-2019.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Doctorat: K. Alahari, Lecturer at the CVIT summer school on machine learning, 4h eqTD, IIIT Hyderabad, India.
- Doctorat: J. Mairal, Large-Scale Optimization for Machine Learning, 9h eqTD, Lecture at OBA summer school, Veroli, 2019.
- Doctorat: J. Mairal, Large-Scale Optimization for Machine Learning, 4.5h eqTD. Invited Tutorial at IEEE Data Science Workshop on Minneapolis, 2019.
- Doctorat: J. Mairal, Large-Scale Optimization for Machine Learning, 4.5h eqTD. Invited Tutorial at the Quantitative BioImaging Conference, Rennes, 2019.

- Doctorat: C. Schmid, Course on action recognition at Data Science Summer School, Paris, June 2019.
- Doctorat: C. Schmid, Course on action recognition at Prairie artificial intelligence summer school (PAISS), 2.25h eqTD, Paris, October 2019.
- Master: K. Alahari, C. Schmid, Object recognition, Master-2 Computer Science, Grenoble University, 15.75h eqTD together, 2019.
- Master: K. Alahari, Understanding Big Visual Data, 13.5h eqTD, M2, Grenoble INP, France.
- Master: K. Alahari, Graphical Models Inference and Learning, 18h eqTD, M2, CentraleSupelec, Paris, France.
- Master: K. Alahari, Introduction to computer vision, 9h eqTD, M1, ENS Paris, France.
- Master: J. Mairal, Kernel methods for statistical learning, 15h eqTD, M2, Ecole Normale Supérieure, Cachan, France.
- Master: J. Mairal, Advanced Learning Models, 13.5h eqTD, M2, UGA, Grenoble.
- Master: C. Schmid, Object recognition and computer vision, Master-2 MVA, ENS, 9h eqTD, 2019.
- Master: A. Sablayrolles, Fundamentals of Machine Learning, African Masters of Machine Intelligence, Kigali, Rwanda.

10.2.2. Supervision

HDR: Karteek Alahari, Human, Motion and Other Priors for Partially-Supervised Recognition, Univ. Grenoble Alpes, 28/1/2019.

PhD: Alberto Bietti, Foundations of deep convolutional models through kernel methods, Univ. Grenoble Alpes, 27/11/2019, director: Julien Mairal.

PhD: Nikita Dvornik, Learning with Limited Annotated Data for Visual Understanding, Univ. Grenoble Alpes, 26/11/2019, thesis directors: Cordelia Schmid and Julien Mairal.

PhD: Konstantin Shmelkov, Approaches for incremental learning and image generation, Univ. Grenoble Alpes, 29/3/2019, thesis directors: Karteek Alahari and Cordelia Schmid.

10.2.3. Juries

- K. Alahari: External examiner for the PhD thesis of Alessandro di Martino, University of Bath, UK.
- K. Alahari: Examiner for the PhD thesis of Thomas Robert, Sorbonne Université, Paris, France.
- K. Alahari: Examiner for the PhD thesis of D. Khuê Lê-Huu, Université Paris-Saclay, France.
- K. Alahari: Member of comité de suivi for the PhD thesis of Miguel Angel Solinas, Univ. Grenoble-Alpes, France.
- J. Mairal: Reviewer for the PhD thesis of Zhenyu Liao, Université Paris-Saclay.
- J. Mairal: Reviewer for the PhD thesis of Belhal Karimi, Université Paris-Saclay
- J. Mairal: Reviewer for the PhD thesis of Martin Bompaire, Université Paris-Saclay
- J. Mairal: Reviewer for the PhD thesis of Yassine Yaakoubi, Polytechnique Montréal.
- J. Mairal: Examinateur for the PhD thesis of Mathurin Massias, Université Paris-Saclay.
- J. Mairal: Member of comité de suivi for the PhD thesis of Olga Permiakova, Univ. Grenoble Alpes.
- J. Verbeek: Member supervisory commitee for PhD of Riccardo Del Chiaro, 2018-2020, Univ. Florence, Italy.
- J. Verbeek: Member supervisory commitee for PhD of Fabien Baradel, 2017-2019, INSA Lyon, France.
- J. Verbeek: External reviewer for Shell Xu Hu, 2019, Ecole des Ponts, Paris Tech, Univ. Paris Est, Paris, France.
- J. Verbeek: Rapporteur for Hedi Ben Younes, 2019, Sorbonne University, Paris, France.

<h1 style="text-align:center;color:red">TITANE Project-Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Pierre Alliez was program co-chair of the EUROGRAPHICS conference and of the Symposium on Solid and Physical Modeling (SPM).

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Pierre Alliez: member of the advisory board for EUROGRAPHICS 2020.
- Florent Lafarge: EUROGRAPHICS
- Yuliya Tarabalka: ICCV

10.1.2.2. Reviewer

- Pierre Alliez: ACM SIGGRAPH, SIGGRAPH Asia, Symposium on Geometry processing.
- Florent Lafarge: CVPR, ICCV, SIGGRAPH.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Pierre Alliez: associate editor of the Computer Graphics Forum, Computer-Aided Geometric Design and Computer-Aided Design. He is also a member of the editorial board of the CGAL open source project.
- Florent Lafarge: associate editor of The Visual Computer and the Revue Française de Photogrammétrie et de Télédétection, and member of the Editorial Advisory Board of the ISPRS Journal of Photogrammetry and Remote Sensing

10.1.3.2. Reviewer - Reviewing Activities

- Pierre Alliez: reviewer for Computer Graphics Forum and ACM Transactions on Graphics.
- Florent Lafarge: reviewer for the ISPRS Journal of Photogrammetry and Remote Sensing and the International Journal of Computer Vision.

10.1.4. Invited Talks

Pierre Alliez gave invited talks at Cambridge university, Google X and UCLA.

10.1.5. Leadership within the Scientific Community

Pierre Alliez is a member of the Steering Committees of the EUROGRAPHICS Symposium on Geometry Processing, EUROGRAPHICS Workshop on Graphics and Cultural Heritage and Executive Board Member for the Solid Modeling Association.

10.1.6. Scientific Expertise

Pierre Alliez was a reviewer for the European commission and ANR, and is a scientific advisory board member for the Bézout Labex in Paris (Models and algorithms: from the discrete to the continuous).

10.1.7. Research Administration

Pierre Alliez is Head of Science of the Inria Sophia Antipolis center and a member of the scientific committee of the 3IA Côte d'Azur.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Pierre Alliez, Florent Lafarge and Gaétan Bahl, advanced machine learning, 21h, M2, university Nice Sophia Antipolis, France.

Master: Pierre Alliez, data visualization, 3h, M2, university Côte d'Azur, France.

Master: Pierre Alliez and Florent Lafarge, 3D Meshes and Applications, 32h, M2, Ecole des Ponts ParisTech, France.

Master: Florent Lafarge, Traitement d'images numériques, 6h, M2, university Nice Sophia Antipolis, France.

Master: Pierre Alliez and Florent Lafarge, Interpolation numérique, 60h, M1, university Nice Sophia Antipolis, France.

Master: Florent Lafarge, Mathématiques pour la géométrie, 20h, M1, EFREI, France.

Master: Yuliya Tarabalka, Discrete inference and learning, 12h, M2 MVA, ENS Paris-Saclay & CentraleSupelec, France.

10.2.2. Supervision

PhD defended January 16th: Hao Fang, Geometric modeling of man-made objects at different level of details, since March 2016, Florent Lafarge.

PhD defended December 6th: Jean-Philippe Bauchet, Kinetic data structures for the geometric modeling of urban environments, since October 2016, Florent Lafarge.

PhD in progress: Julien Vuillamy, city reconstruction from multi-sourced data, since April 2018, Pierre Alliez and Florent Lafarge.

PhD in progress: Muxingzi Li, indoor reconstruction from a smartphone, since February 2018, Florent Lafarge.

PhD in progress: Lionel Matteo: From Pleiades images to very high resolution topography in complex zones, since September 2017, Yuliya Tarabalka and Isabelle Manighetti.

PhD in progress: Onur Tasar, Using deep learning approaches to devise an efficient representation for large-scale satellite images, since October 2017, Yuliya Tarabalka and Pierre Alliez.

PhD in progress: Nicolas Girard, How to structure satellite data, since November 2017, Yuliya Tarabalka.

PhD in progress: Vincent Vadez, Geometric simplification of satellites for thermal simulation, since August 2018, Pierre Alliez.

PhD in progress: Gaétan Bahl, low-power neural networks, since March 2019, Florent Lafarge.

PhD in progress: Mulin Yu, remeshing urban-specific CAD formats, since November 2019, Florent Lafarge.

PhD in progress: Tong Zhao, shape reconstruction, since November 2019, Pierre Alliez and Laurent Busé (from the Aromath Inria project-team).

PhD stopped after one year: Flora Quilichini, Geometry Compression, between January 2018 and June 2019, Pierre Alliez and Guillaume Lavoué (INSA Lyon).

10.2.3. Juries

- Pierre Alliez was a PhD committee member for Siargey Kachanovich and Jean-Philippe Bauchet (Inria Sophia Antipolis). He was a reviewer for the habilitation committee of Sébastien Valette (INSA Lyon).
- Florent Lafarge was a PhD thesis reviewer for Romain Rombourg (University of Grenoble Alpes) and Thomas Holzmann (TU Graz, Austria).

10.3. Popularization

10.3.1. Interventions

- Pierre Alliez gave a talk on geometric modeling in a high school in Cannes, April 26th.

TYREX Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. General Chair, Scientific Chair

- Angela Bonifati is program chair of EDBT 2020, and co-chair of the Workshops of SIGMOD 2019.

8.1.1.2. Member of the Organizing Committees

- P. Genevès is member of the Organizing Committee of BDA 2019.
- A. Bonifati is a permanent member of ICDT Council (The International Conference on Database Theory), and co-chair and organizer of the EDBT 2019 summer school.

8.1.2. Scientific Events: Selection

8.1.2.1. Chair of Conference Program Committees

- A. Bonifati is Co-chair of the SIGMOD 2019 Workshops.

8.1.2.2. Member of the Conference Program Committees

- P. Genevès has been program committee member for IJCAI'19, AAAI'20, IJCAI-PRICAI'20.
- A. Bonifati has been program committee member of VLDB 2019, PODS 2019, AAAI 2019, ICDE 2019, EDBT 2019, SIGMOD 2019, DEBS 2019, ICDT 2020.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

- A. Bonifati is Associate Editor of ACM Trans. on Database Systems.
- A. Bonifati is Associate Editor of the VLDB Journal.

8.1.4. Scientific Expertise

- P. Genevès has been a scientific expert at ANRT for the CIFRE funding process.

8.1.5. Research Administration

- P. Genevès is responsible for the Computer Science Specialty at the Doctoral School MSTII (ED 217)
- C. Roisin is a member of the CNU (Conseil National des Universités).
- C. Roisin is a member of the Inria Grenoble Inria-Hub committee.
- C. Roisin has been president of a Committee of Selection for an assistant position at university Grenoble-Alpes.
- N. Layaïda is a member of the experts pool (selection committee) of the minalogic competitive cluster.
- A. Bonifati and N. Layaïda are members of the Scientific Board of Digital League, the digital cluster of Auvergne-Rhône-Alpes.
- A. Bonifati is coordinator of the theme "Masses de Données" at Liris and at "Fédération d'Informatique de Lyon" (FIL).

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- Licence : C. Roisin, Programmation C, 12h eq TD, L2, IUT2, Univ. Grenoble-Alpes
- Licence : C. Roisin, Architecture des réseaux, 112h eq TD, L1, IUT2, Univ. Grenoble-Alpes
- Licence : C. Roisin, Services réseaux, 22h eq TD, L2, IUT2, Univ. Grenoble-Alpes
- Licence : C. Roisin, Introduction système Linux, 21h eq TD, L1, IUT2, Univ. Grenoble-Alpes
- Licence : C. Roisin, Système et réseaux, 14h eq TD, L3, IUT2, Univ. Grenoble-Alpes
- Licence : C. Roisin, Tutorat pédagogique de 4 apprentis, 20h eq TD, L3, IUT2, Univ. Grenoble-Alpes
- Licence : C. Roisin, Suivi pédagogique de 20 étudiants (responsable de la Licence Professionnelle MI-ASSR), 13h eq TD, L1, IUT2, Univ. Grenoble-Alpes
- Licence : N. Gesbert, 'Logique pour l'informatique', 45 h eq TD, L3, Grenoble INP
- Master : N. Gesbert, 'Principes des systèmes de gestion de bases de données', 42 h eq TD, M1, Grenoble INP
- Master : N. Gesbert, academic tutorship of an apprentice, 10 h eq TD, M1, Grenoble INP
- Master : N. Gesbert, 'Fondements logiques pour l'informatique', 16 h 30 eq TD, M1, Grenoble INP
- Master : N. Gesbert, 'Construction d'applications Web', 21 h eq TD, M1, Grenoble INP
- Master : N. Gesbert, 'Analyse, conception et validation de logiciels', 30 h eq TD, M1, Grenoble INP
- Master : N. Gesbert, 'Introduction to lambda-calculus', 5 h eq TD, M2, UGA-Grenoble INP (MOSIG)
- N. Gesbert is responsible of the L3-level course 'logique pour l'informatique' (25 apprentices) and of the M1-level course 'construction d'applications Web' (72 students).
- P. Genevès is responsible and teacher in the M2-level course 'Semantic Web: from XML to OWL' of the MOSIG program at UGA (36h)
- P. Genevès is responsible and teacher in the M2-level course 'Accès à l'information: du web des données au web sémantique' of the ENSIMAG ISI 3A program at Grenoble-INP (30h)

8.2.2. Supervision

- PhD in progress: Muideen Lawal, Cost models for optimizing compilers based on mu-terms, PhD started in October 2017, co-supervised by Pierre Genevès and Nabil Layaïda.
- PhD in progress: Raouf Kerkouche, Privacy-preserving predictive analytics with big prescription data, PhD started in October 2017, co-supervised by Pierre Genevès and Claude Castelluccia.
- PhD in progress: Fateh Boulmaiz, Distributed representations of large-scale graphs, PhD started in November 2017, co-supervised by Pierre Genevès and Nabil Layaïda.
- PhD in progress: Sarah Chlyah, Algebraic foundations for the synthesis of optimized distributed code, PhD started in March 2018, supervised by Pierre Genevès.
- PhD in progress: Amela Fejza, On the extended algebraic representations for analytical workloads, PhD started in October 2018, supervised by Pierre Genevès.

<h1 style="text-align:center; color:red">VALDA Project-Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Camille Bourgaux, organizer of the yearly meeting of the national working group on *Automata, Logic, Games, and Algebra* (ALGA, GDR IM) in 2019
- Leonid Libkin was appointed general chair of PODS
- Luc Segoufin, chair of the steering committee of the conference series *Highlights of Logic, Games and Automata*
- Luc Segoufin and Pierre Senellart, co-organizers of École de Printemps en Informatique Théorique (EPIT) 2019
- Pierre Senellart, co-organizer and chief judge of the ICPC (International Collegiate Programming Contest) Southwestern Europe 2019-2020 competition

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Leonid Libkin, LICS 2021 (in 2019: constitution of the program committee)

10.1.2.2. Member of the Conference Program Committees

- Camille Bourgaux, IJCAI 2019, AAAI 2020, ECAI 2020
- Olivier Cappé, ALT 2019
- Leonid Libkin, IJCAI 2019, AAAI 2020, ECAI 2020, FOSSACS 2020, ICDT 2020
- Pierre Senellart, SUM 2019, PODS 2019, STACS 2020
- Michaël Thomazo, IJCAI 2019

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Olivier Cappé, *Annals of the Institute of Statistical Mathematics*
- Leonid Libkin, *Acta Informatica*
- Leonid Libkin, *Bulletin of Symbolic Logic*
- Leonid Libkin, *Journal of Applied Logic*
- Leonid Libkin, *SN Computer Science*

10.1.3.2. Reviewer - Reviewing Activities

- Pierre Senellart, *Future Generation Computer Systems*

10.1.4. Invited Talks

- Leonid Libkin, keynote at BDA 2019
- Pierre Senellart, invited talk at Singaporean-French workshop on Artificial Intelligence (SinFra), Singapore
- Pierre Senellart, invited lecture at *Reasoning Web* summer school, Bolzano, Italy

10.1.5. Leadership within the Scientific Community

- Serge Abiteboul is a member of the French Academy of Sciences, of the Academia Europaea, of the scientific council of the Société Informatique de France, and an ACM Fellow.
- Leonid Libkin is a Fellow of the Royal Society of Edinburgh, a member of the Academia Europaea, of the UK Computing research committee, and an ACM Fellow.
- Pierre Senellart is a member of the steering committee of BDA, the French scientific community on data management.

10.1.6. Scientific Expertise

- Pierre Senellart has performed a confidential audit of a company for the French government (*direction interministérielle du numérique et du système d'information et de communication de l'État*)
- Pierre Senellart, ANR

10.1.7. Research Administration

- Olivier Cappé is a scientific deputy director of CNRS division of Information Sciences and Technologies (INS2I).
- Luc Segoufin is a member of the CNHSCT of Inria.
- Pierre Senellart is a member of the board of section 6 of the National Committee for Scientific Research.
- Pierre Senellart is deputy director of the DI ENS laboratory, joint between ENS, CNRS, and Inria.
- Pierre Senellart is a member of the board of the DIM RFSI (Réseau Francilien en Sciences Informatiques).
- Pierre Senellart was a member of the scientific council of PGMO (Programme Gaspard Monge) until mid-2019.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: Serge Abiteboul, *Scientific reading group*, 15 heqTD, L3, École normale supérieure

Licence: Pierre Senellart, Nathan Grosshans, Michaël Thomazo, *Databases*, 74 heqTD, L3, École normale supérieure

Licence: Pierre Senellart, *Algorithms*, 18 heqTD, L3, École normale supérieure

Licence: Nathan Grosshans, *Formal languages*, 22 heqTD, L3, Télécom ParisTech

Master: Pierre Senellart, *Web data management*, 36 heqTD, M2, MPRI

Pierre Senellart has various teaching responsibilities (L3 internships, M1 projects, M2 administration, entrance competition) at ENS. Nathan Grosshans is the secretary of the entrance competition at ENS for computer science. Most members of the group are also involved in tutoring ENS students, advising them on their curriculum, their internships, etc. They are also occasionally involved with reviewing internship reports, supervising student projects, etc.

10.2.2. Supervision

PhD: Karima Rafes, *Le Linked Data à l'université : la plateforme LinkedWiki*, Université Paris-Saclay, 25 January 2019, Serge Abiteboul & Sarah Cohen-Boulakia

PhD in progess: Juliette Achddou, *Application of reinforcement learning strategies to the context of Real-Time Bidding*, started in September 2018, Olivier Cappé & Aurélien Garivier

PhD in progress: Julien Grange, *Graph properties: order and arithmetic in predicate logics*, started in September 2017, Luc Segoufin

PhD in progress: Yann Ramusat, *Provenance-based routing in probabilistic graphs*, started in September 2018, Silviu Maniu & Pierre Senellart

PhD in progess: Yoan Russac, *Sequential methods for robust decision making*, started in December 2018, Olivier Cappé

10.2.3. Juries

- HdR Paolo Papotti, April 2019, Université de Nice – Sophia-Antipolis, Pierre Senellart (reviewer)
- PhD Ugo Comignani, September 2019, Université Claude Bernard Lyon 1, Pierre Senellart (reviewer)

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Serge Abiteboul is the president of the strategic committee of the Blaise Pascal foundation for scientific mediation.

Pierre SENELLART is a research fellow within the CERRE (Centre on Regulation in Europe), a European think tank that produces policy papers and organize events about the regulation of network industries. He contributes in particular to reflections on the use of artificial intelligence techniques and on the interoperability of software platforms.

10.3.2. Articles and contents

Serge Abiteboul writes regular columns on popularization of computer science in La Recherche and Le Monde (Économie). He is a founding editor of the *binaire* blog for popularizing computer science. See https://www.lemonde.fr/blog/binaire/.

<p style="text-align:center; color:red;">**WILLOW Team**</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- I. Laptev was co-organizedr of BMVA Symposium on Video Understanding in London, September 2019.
- P.-L. Guhur was co-organizer of Junior Conference on Data Science and Engineering at Paris-Saclay, September 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Area chairs

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019 (I. Laptev).
- Neural Information Processing Systems (NeurIPS), 2019 (J. Sivic).

10.1.2.2. Member of the Conference Program Committees / Reviewer

- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2019 (A. Miech, M. Tapaswi).
- IEEE/CVF International Conference on Computer Vision (ICCV), 2019 (A. Miech, M. Tapaswi).
- Neural Information Processing Systems (NeurIPS), 2019 (I. Laptev, I. Rocco, M. Tapaswi).
- British Machine Vision Conference (BMVC), 2019 (I. Rocco).
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2019 (I. Laptev, J. Carpentier, J. Sivic, Y. Labbe).
- IEEE International Conference on Robotics and Automation (ICRA), 2019 (J. Carpentier, Y. Labbe, J. Sivic).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- International Journal of Computer Vision (I. Laptev, J. Ponce, J. Sivic).
- IEEE Transactions on Pattern Analysis and Machine Intelligence (I. Laptev, J. Sivic).
- Foundations and Trends in Computer Graphics and Vision (J. Ponce).

10.1.3.2. Reviewer - Reviewing Activities

- International Journal of Computer Vision (M. Tapaswi).
- IEEE Transactions on Pattern Analysis and Machine Intelligence (I. Rocco).
- IEEE Transactions on Robotics (J. Carpentier).
- IEEE Robotics and Automation Letters (J. Carpentier).
- Plos One (M. Tapaswi).

10.1.4. Invited Talks

- I. Laptev, invited talk, AI Video Summit, FAIR, Los Angeles, June 2019.
- I. Laptev, invited talk, ActivityNet CVPR Workshop, Long Beach, June 2019.
- I. Laptev, keynote, AIST, Kazan, July 2019.

- I. Laptev, invited talk, ELLIS Workshop, San Sebastian, September 2019.
- I. Laptev, seminar, KTH, Stockholm, September 2019.
- I. Laptev, invited talk, BMVA Symposium on Video Understanding, London, September 2019.
- I. Laptev, invited talk, Qualcomm-UvA Deep Learning Seminars, Amsterdam, September 2019.
- I. Laptev, invited talk, Extreme Vision ICCV Workshop, Seoul, October 2019.
- I. Laptev, invited talk, CoVieW ICCV Workshop, Seoul, October 2019.
- I. Laptev, invited talk, Hands in Action ICCV Workshop, Seoul, October 2019.
- I. Laptev, keynote, DICTA, Perth, December 2019.
- I. Laptev, invited talk, SkolTech, Moscow, December 2019.
- J. Ponce, invited talk, Pavillon des Sciences CCI, Montbelliard, March 2019.
- J. Ponce, invited talk, France is AI, Paris, Oct. 2019.
- J. Ponce, invited talk, Ecole navale, Brest, Jan. 2019.
- J. Sivic, Keynote, European Conference on Mobile Robots (ECMR), Prague, September 2019.
- J. Sivic, Seminar on Weakly supervised learning for visual recognition, College de France, February 2019
- J. Sivic, Invited speaker, ML in PL conference, Warsaw, November 2019
- J. Sivic, Seminar, DeepMind, London, February 2019
- J. Sivic, Talk at invited workshop of the ELLIS computer vision program, San Sebastian, September 2019
- I. Rocco, invited talk, SMILE seminar at Télécom Paris, Paris, March 2019.
- I. Rocco, seminar, IMAGINE group at ENPC, Paris, April 2019.
- J-P. Laumond, invited talk, La robotique, Café Scientifique, Cité des sciences et de l'industrie, Paris, Janurary 2019.
- J-P. Laumond, invited talk, Une machine peut-elle apprendre ?, Les Découvrades, Toulouse, February 2019.
- J-P. Laumond, invited talk, La robotique : retour vers le réel, Théatre Tourski, Marseille, February 2019.
- J-P. Laumond, invited talk, Robots, Exhibition opening, Cité des sciences et de l'industrie, Paris, March 2019.
- J-P. Laumond, scientific talk, Robot Motion, Workshop on Robotics and Art, IEEE ICRA, Montreal, May 2019.
- J-P. Laumond, scientific talk, Wording Robotics, Workshop on Rhetoric and Robotics, IEEE ICRA, Montreal, May 2019.
- J-P. Laumond, scientific talk, Robotique et Biomécanique, Keynote, Congrès de physiologie, Montpellier, June 2019.
- J-P. Laumond, scientific talk, Robotics and AI, Istituto di Robotica e Macchine Intelligenti Grand Opening, Roma, October 2019.
- J. Carpentier, scientific talk, La robotique envisagée comme une science des données, CNRS Grenoble, January 2019.
- J. Carpentier, scientific talk, La robotique envisagée comme une science des données, Inria Grenoble, February 2019.
- J. Carpentier, scientific talk, Analytical Derivatives of Rigid Body Dynamics algorithms, RSS, June 2019.

- J. Carpentier, scientific talk, La robotique : la fabrique du mouvement artificiel, Journées DGDI Inria, Rocquencourt, November 2019.
- M. Tapaswi, scientific talk, Understanding Humans and the Stories they Tell, LIMSI Paris, February 2019.
- M. Tapaswi, scientific talk, Understanding Humans and the Stories they Tell, UPC Barcelona, August 2019.

10.1.5. Leadership within the Scientific Community

- Member of the advisory board for the IBM Watson AI Xprize (J. Ponce).
- Member of the steering committee of France AI (J. Ponce).
- Member of advisory board, Computer Vision Foundation (J. Sivic).
- Board Member Deputy, European Laboratory for Learning and Intelligent Systems – ELLIS (J. Sivic)

10.1.6. Scientific Expertise

- J. Ponce, coordinator of the AI theme for the joint French-American Committee on Science and Technology, 2018-.
- I. Laptev, head of scientific board at VisionLabs, 2019-.

10.1.7. Research Administration

- Member, Bureau du comité des projets, Inria, Paris (J. Ponce)
- Member, Scientific academic council, PSL Research University (J. Ponce)
- Member, Research representative committee, PSL Research University (J. Ponce).
- Member of Inria Commission de développement technologique (CDT), 2012-2018 (J. Sivic).
- Member of the Hiring Committee at Computer Science department, École normale supérieure (I. Laptev).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: M. Aubry, K. Alahari, I. Laptev and J. Sivic "Introduction to computer vision", M1, Ecole normale supérieure, 36h.
- Master: I. Laptev, J. Ponce and J. Sivic (together with C. Schmid, Inria Grenoble), "Object recognition and computer vision", M2, Ecole normale superieure, and MVA, Ecole normale superieure de Cachan, 36h.
- Master: J-P. Laumond and J. Carpentier, "Robotics", M1 MPRI, Ecole normale supérieure and Ecole normale superieure de Cachan, 48h.
- Master: J-P. Laumond, "Robotics", Ecole des Mines de Paris, 4h.
- Master: J. Sivic, three lectures (3 x 1.5h) in the 3D computer vision class of V. Hlavac at Charles University in Prague.
- License: P.L. Guhur, "Developping web applications with React Js", L3, Université Grenoble Alpes, 30h.
- J. Ponce co-organized the PRAIRIE AI Summer School in Paris, 2019.
- Bachelor: J. Ponce, "Inroduction to computer vision" MS level class, NYU Center for Data Science, Fall 2019

10.2.2. Supervision

PhD in progress : Vo Van Huy, started in Dec 2018, J. Ponce.

PhD in progress : Pierre-Louis Guhur, "Learning Visual Language Manipulation", started in Oct 2019, I. Laptev and C. Schmid.

PhD in progress : Aamr El Kazdadi, started in Oct 2019, J. Carpentier and J. Ponce.

PhD in progress : Bruno Lecouat, started in Sept 2019, J. Ponce and J. Mairal (Inria Grenoble).

PhD in progress : Robin Strudel, "Learning and transferring complex robot skills from human demonstrations", started in Oct 2018, I. Laptev, C. Schmid and J. Sivic.

PhD in progress : Yann Labbe, "Generalizing robotic sensorimotor skills to new tasks and environments", started in Oct 2018, J. Sivic and I. Laptev.

PhD in progress : Minttu Alakuijala, started in Feb 2019, J. Ponce and C. Schmid.

PhD in progress : Thomas Eboli, started in Oct 2017, J. Ponce.

PhD in progress : Zongmian Li, "Learning to manipulate objects from instructional videos", started in Oct 2017, I. Laptev, J. Sivic and N. Mansard (LAAS/CNRS, Toulouse).

PhD in progress : Yana Hasson, "Reconstruction and recognition of hand-object manipulations", started in Nov 2017, I. Laptev and C. Schmid.

PhD in progress : Ronan Riochet, "Reconstruction and recognition of hand-object manipulations", started in Oct 2017, E. Dupoux, I. Laptev and C. Schmid.

PhD in progress : Dmitry Zhukov, "Learning from instruction videos for personal assistants", started in Oct 2017, I. Laptev and J. Sivic.

PhD in progress : Ignacio Rocco, "Estimating correspondence between images via convolutional neural networks", started in Jan 2017, J. Sivic, R. Arandjelovic (Google DeepMind).

PhD in progress : Antoine Miech, "Understanding long-term temporal structure of videos", started in Oct 2016, I. Laptev, J. Sivic.

PhD defended : Gul Varol, "Deep learning methods for video interpretation", graduated in May 2019, I. Laptev, C. Schmid.

PhD defended : Julia Peyre, "Learning to reason about scenes from images and language", graduated in August 2019, C. Schmid, I. Laptev, J. Sivic.

PhD defended : Theophile Dalens, "Learning to analyze and reconstruct architectural scenes", graduated in September 2019, M. Aubry and J. Sivic.

10.2.3. Juries

- PhD thesis committee:
    - Dmitry Ulyanov, SkolTech, Russia, 2019 (I. Laptev, rapporteur).
    - Judith Bütepage, KTH, Sweden, 2019 (I. Laptev, rapporteur).
    - Alexander Richard, University of Bonn, Germany, 2019 (I. Laptev, rapporteur).
    - Rıza Alp Güler, Université Paris Saclay, France, 2019 (I. Laptev, rapporteur).
    - Tatiana Shpakova, l'École Normale Supérieure, France, 2019 (I. Laptev, examinateur).
    - Konstantin SHMELKOV, Universite Grenoble Alpes, (J. Sivic, examinateur)
    - Sanjeel PAREKH, Télécom Paris, (J. Sivic, rapporteur)
    - Filip RADENOVIC, Czech Technical University (J. Sivic, rapporteur)
    - Nathan PIASCO, Université Bourgogne Franche-Comte (J. Sivic, examinateur)
- HDR committee:
    - Karteek Alahari, HDR defense, Jan. 2019 (J. Ponce)
    - Mathieu Aubry, HDR defense, Aug. 2019 (J. Ponce)

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

J.P. Laumond is the scientific curator of the permanent exhibition at Cité des Sciences et de l'Industrie. The aim of this exhibition is to help the general audience to understand the concepts of robotics. Indeed, the notion of robotics today is packed with many preconceived notions, phobias, and utopias, all fed by literature and a rich film culture. The real challenge of the exhibition is the presentation of authentic working robots that raises awareness of our relationship to these singular machines. How do they work? What are they for? What are their performances today and what will they be tomorrow? The exhibition lays bare the actual capabilities of robots and provides insight into the current issues.

<h1 style="color:red; text-align:center">WIMMICS Project-Team</h1>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Elena Cabrio was Conference Handbook Chair of ACL 2019 (Association of Computational Linguistics conference). Florence (Italy), July 2019.

Catherine Faron Zucker was co-chair of the AFIA scientific day on Education and Training on Artificial Intelligence (EFIA), Paris, 10/02/2019.

Fabien Gandon was general chair of ISWC the International Semantic Web Conference, October, 2019.

Serena Villata was Handbook Chair of the 2019 Conference on Empirical Methods in Natural Language Processing (EMNLP- 2019).

10.1.1.2. Member of the Organizing Committees

Michel Buffa was co-organizer of the W3C Workshop on Web Games, 27-28 June 2019; Redmond, WA, USA.

Fabien Gandon was co-organizer of the Joint Day Inria Ministry of Culture 02/12/2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

Nhan Le Thanh:

Program chair of 13th International Conference on Computing and Communication Technologies (RIVF). 20-22 March 2019, Danang, Vietnam.

10.1.2.2. Member of the Conference Program Committees

Michel Buffa:

WebAudio conference 2019

W3C Workshop on Web Games, 27-28 June 2019; Redmond, WA, USA

Elena Cabrio:

Association for Computational Linguistics conference (ACL 2019), EMNLP2019, the Extended Semantic Web Conference (ESWC 2019), the International Semantic Web Conference, the AAAI Conference on Artificial Intelligence (AAAI-19).

Olivier Corby:

Digital Health, Ingénierie des Connaissances, ICCS, IJCAI, ISWC, KCAP, Quweda, SBBD, TheWebConf, WUM.

Jérôme Delobelle:

AAAI, IJCAI 2019 ⇒ Distinguished Program Committee member, Rencontres des Jeunes Chercheurs en Intelligence Artificielle (RJCIA), AAMAS.

Catherine Faron Zucker:

TheWebConf, IJCAI (Int. Joint Conference on Artificial Intelligence), ESWC (European Semantic Web Conference), ISWC (Int. Semantic Web Conference), Semantics, ICCS (Int. Conference on Conceptual Structures), IC (Ingénierie des Connaissances), EGC (Extraction et Gestion des Connaissances), EIAH (Environnements Informatiques pour l'Apprentissage Humain).

Fabien Gandon reviewed for: IJCAI, EGC, WebSci.

Oscar Rodríguez Rocha:

SAC 2020 - ACM Symposium on Applied Computing 2020 - The Semantic Web and Applications (SWA), AAAI 2020 - The 34th AAAI Conference on Artificial Intelligence, IJCAI, Semantics, IEEE-RIVF Internation Conference on Computing and Communication Technologies, KEOD International Conference on Knowledge Engineering and Ontology Development, KSE International Conference on Knowledge and Systems Engineering.

Andrea Tettamanzi:

AAAI-19, ACM 2020 (SWA Track), EGC 2020, EKAW 2020, PPSN 2020, TheWebConf 2020, and Web Intelligence 2020 conferences. He was Senior PC Member of IJCAI.

Serena Villata:

IJCAI, EMNLP, AAAI, AAMAS, JURIX, ICAIL.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Catherine Faron Zucker:

Revue d'Intelligence Artificielle, Guest editor of the Semantic Web journal for a special issue devoted to extended versions of the best papers of EKAW 2018.

Serena Villata is among the authors of two editorial activities:

- Livio Robaldo, Serena Villata, Adam Wyner, Matthias Grabmair: Introduction for artificial intelligence and law: special issue "Natural Language Processing for Legal Texts". Artif. Intell. Law 27(2): 113-115 (2019) [4],

- Qingliang Chen, Paolo Torroni, Serena Villata: Principles and practice of multi-agent systems. Knowledge Eng. Review 34: e3 (2019) [2].

10.1.3.2. Reviewer - Reviewing Activities

Elena Cabrio:

Journal Argument and Computation.

Andrea Tettamanzi has served as a referee for the journals: Fuzzy Sets and Systems, Semantic Web Journal, Transactions on Evolutionary Computation.

Serena Villata:

Journal of Logic and Computation, Argument & Computation, Artificial Intelligence.

10.1.4. Invited Talks

Michel Buffa:

Programmable Audio Workshop, "WebAudio applications developed during the WASABI ANR Project", December 4, 2019 — GRAME-CNCM, Lyon (France)

Master Class "Wasabi Project : Make Music Accessible To Everybody", Sophia Summit, 19th November 2019, Sophia Antipolis, France.

Elena Cabrio:

An introduction to Computational Linguistics. University of Bologna (Italy). May 2019.

Olivier Corby:

Graph Data on the Web: extend the pivot, don't reinvent the wheel , W3C workshop on RDF and Property Graph, Berlin, March 5th.

SPARQL Template & Function, workshop at EDF, Orsay, May 21st.

Introduction au Web sémantique, Datathon workshop of "archives nationales", Paris, november 29th.

Jérôme Delobelle:

"Comment utiliser l'argumentation pour lutter contre les fausses informations?", GraphiK team (Inria (Sophia Antipolis Méditerranée center), LIRMM (University of Montpellier and CNRS) and INRA), November 21st.

Catherine Faron Zucker:

Invited talk at the workshop of the MODAL project, Rennes, 2019/07/11: Injecting Domain Knowledge in Electronic Medical Records to Improve Hospitalization Prediction

Fabien Gandon:

Web Science 2019 keynote, The Web We Mix - benevolent AIs for a resilient web, Boston, USA, June,

RIVF 2019 keynote, Web of Data and Semantic Web: Linking Data and Their Schemas around the World, Da Nang Vietnam, March.

Andrea Tettamanzi:

Seminar, "Towards an Evolutionary Epistemology of Ontology Learning" at University of Danang, Vietnam, on March 19, 2019.

Conference on Unsupervised Learning at Amadeus, Sophia Antipolis, May 17, 2019.

Conference on Unsupervised Learning at Amadeus, Sophia Antipolis, October 25, 2019.

Serena Villata:

International Conference on Legal Data Mining, Machine Learning and Visualisation organized by HEC in March 2019 in Paris.

10.1.5. Leadership within the Scientific Community

Fabien Gandon is:

- member of IW3C2 steering committee for The Web Conference (WWW series) until May 2019.
- member of SWSA steering committee for the ISWC conference (as general chair of ISWC 2019).
- member of ESWC conference steering committee until October 2019.
- member of Web Science Trust Network.

10.1.6. Scientific Expertise

Michel Buffa:

Member of the W3C WebAudio working group

Academic Representative of Université Côte d'Azur to the W3C (AC Rep)

Elena Cabrio:

Reviewer of the proposals of the Vienna Science and Technology Fund (WWTF) in 2019.

Reviewer of the projects "soutien aux contrats doctoraux" of the Grand Est Région (France) in 2019.

Member of the evaluation committee assigning the AILC Master Thesis Award (the Italian association for Computational Linguistics) in 2019.

Catherine Faron Zucker:

scientific referent of the Inria Learning Lab,

member of the ANR scientific evaluation committe "Artificial Intelligence" (CE23),

reviewer of project proposals for the MSH Paris-Saclay.

10.1.7. Research Administration

Michel Buffa:

Member of the scientific council of the GRAME laboratory (Lyon)

Director of the Miage de Nice Sophia-Antipolis, composed of Licence, Master 1 and four Master 2 degrees. About 350 students (http://miage.unice.fr)

Olivier Corby is member of the Scientific and Pedagogical committee of DS4H Graduate School "Digital Systems for Humans" at Université Côte d'Azur. He is member of the scientific committee of Academy 1 RISE (Network, Information, Digital Society) at UCA. He is member of the PostDoc selection committee at Inria Sophia Antipolis.

Catherine Faron Zucker:

- General Treasurer of the French Society for Artificial Intelligence (AFIA).
- member of the steering committee of the AFIA college on Knowledge Engineering.
- member of the evaluation committee of Inria.
- member of the CPRH 27 commission at Université Côte d'Azur.
- coordinator of the Web option of the 5th year of Polytech Nice Sophia engineering school.
- pedagogical responsible of continuous training for the computer science department of Polytech Nice Sophia Antipolis.

Fabien Gandon is:

- Vice-head of science for Inria Sophia Antipolis - Méditerranée (Délégué Scientifique Adjoint, DSA)
- Advisory Committee representative of Inria at the World-Wide Web Consortium (W3C)
- Director of the joint research Laboratory Qwant-Inria
- Representative of Inria in the Web Science Trust Network
- Leader of the research convention with the French Ministry of Culture-Inria

Alain Giboin was member of the scientific committee of the IDEX Jedi Academy 5 "Homme, Idées et Milieux".

Serena Villata:

Since January 2019, Management Committee Member for France for the EU project COST Action CA17132 European network for argumentation and public policy analysis, nominated by the Ministére de l'Enseignement Supérieur, de la Recherche et de l'Innovation

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

DUT: Andrea Tettamanzi, Data Mining, 16 h ETD, L2, UCA, France.

Licence: Michel Buffa, JavaScript, 40h, L3 Miage, UNS, France.

Licence: Elena Cabrio, Introduction to the Web, 40 hours, (L2MASS), UNS, France.

Licence: Elena Cabrio, Internship supervision, 27 hours, (L3MIAGE), UNS, France.

Licence: Elena Cabrio, Web, 36 hours, (L3 MIAGE), UNS, France.

Licence: Elena Cabrio, Object Oriented Programming, 14 hours (L3 MIAGE), UNS, France.

Licence: Elena Cabrio, Software Engineering, 20 hours, (L3 MIAGE), UNS, France.

Licence: Andrea Tettamanzi, Advanced Web Programming (client side), 39h , L2, UNS, France.

Licence: Andrea Tettamanzi, Web, 30h, L3, UNS, France.

Master: Michel Buffa, Web technologies front and back end, 40h, M1, UNS, France.

Master: Michel Buffa, Server Side JavaScript and modern front-end frameworks, 60h, M2 Miage NTDP and MBDS, UNS, France.

Master: Michel Buffa, Programmable Web, 40h, M2, Polytech-Nice UNS, France.

Master: Elena Cabrio, Computational Linguistics, 30 hours, (Lettres), UNS, France.

Master: Elena Cabrio, Natural Language Processing for AI, 24 hours, (M1 INFO), UNS, France.

Master and Licence: Elena Cabrio, Responsible of the intership programme, 40 hours, (L3 and M2 MIAGE), UNS, France.

Master: Elena Cabrio, Project supervision, Polytech project "Applied Math", 5 hours, UNS, France.

Master:Olivier Corby, Semantic Web, 20h, Polytech Nice, UNS, France.

Master: Catherine Faron Zucker, Web languages, 48h, M1, PNS UNS.

Master: Catherine Faron Zucker, Semantic Web technologies (EN), 48h, M2 Informatique, PNS, UNS.

Master: Catherine Faron Zucker, Knowledge Engineering (EN), 28h, M2 Informatique, PNS, UNS.

Master: Catherine Faron Zucker, Semantic Web technologies (EN), 30h, M1 Data Science, UNS.

Master: Catherine Faron Zucker, XML technologies, 16h, M2 IMAFA, PNS, UNS.

Master: Catherine Faron Zucker, Projects and Internship tutoring, 32h, M2, PNS, UNS.

Master: Fabien Gandon, Integrating Semantic Web technologies in Data Science developments, 56 h, M2, DSTI, France.

Master: Alain Giboin, Human-Computer-Interaction Design and Evaluation, 21h, M2, UNS, France.

Master: Alain Giboin, Adaptation of User Interfaces, 4h, M2, UNS, France.

Master: Alain Giboin, Task and Activity Analysis for HCI design and evaluation, 16h, M2 Sociology and Ergonomics of Digital Technologies, UNS, France.

Master: Alain Giboin, Digital Strategy (formerly: Economics and ICT) : Ergonomics, 16h, M2 Economics and ICT, ISEM, UNS, France.

Master: Oscar Rodríguez Rocha, Web of Data, 15h, M2, Polytech Nice, UNS, France.

Master: Oscar Rodríguez Rocha, Knowledge Engineering, 10h, M2, Polytech Nice, UNS, France.

Master: Oscar Rodríguez Rocha, Web Langages, 15h, M1, Polytech Nice, UNS, France.

Master: Andrea Tettamanzi, Logic for AI, 30 h ETD, M1, UNS, France.

Master: Andrea Tettamanzi, Web, 30 h ETD, M1, UNS, France.

Master: Andrea Tettamanzi, Agent-Based Modeling, 30 h ETD, M2, UNS, France.

E-learning

Mooc: Michel Buffa, "JavaScript Intro" published first in Juin 2017 on the EDx platform (MIT/Harvard), still active and updated regularly.

Mooc: Michel Buffa, "HTML5 Coding Essentials and Best Practices"

Mooc: Michel Buffa, "HTML5 Apps and Games", also on EDx, are still active and updated regularly.

More than 700.000 registered users since 2015 for these MOOCS.

Mooc: Fabien Gandon, Olivier Corby & Catherine Faron Zucker, Web of Data and Semantic Web (FR), 7 weeks, http://www.france-universite-numerique.fr/, Inria, France Université Numérique, Education for Adults, 3815 learners registered for 2019.

Mooc: Fabien Gandon, Olivier Corby & Catherine Faron Zucker, Introduction to a Web of Linked Data (EN), 4 weeks, http://www.france-universite-numerique.fr/, Inria, France Université Numérique, Education for Adults, 1226 learners registered for 2019.

Mooc: Fabien Gandon, Olivier Corby & Catherine Faron Zucker, Web of Data (EN), 4 weeks, https://www.coursera.org/, Coursera, Education for Adults, 1037 learners registered.

10.2.2. Supervision

PhD in progress: **Molka Dhouib**, *Modelling and supporting a B2B social network of service providers and consumers*, UCA, Catherine Faron Zucker, Andrea Tettamanzi.

PhD in progress: **Ahmed El Amine Djebri**, *Uncertainty in Linked Data*, UCA, Andrea Tettamanzi, Fabien Gandon.

PhD in progress: **Antonia Ettore**, *Artificial Intelligence for Education and Training: Knowledge Representation and Reasoning for the development of intelligent services in pedagogical environments*, UCA, Catherine Faron Zucker, Franck Michel.

PhD in progress: **Michael Fell**, *Natural Language Processing of Song Lyrics*, UCA, Co-supervision Elena Cabrio & Fabien Gandon.

PhD in progress: **Raphaël Gazzotti**, *Modelling Electronic Medical Records and Predicting Hospitalization*, UCA, Catherine Faron Zucker, Fabien Gandon.

PhD in progress: **Nicholas Halliwell**, *Explainable and Interpretable Prediction*, UCA, Fabien Gandon, Serena Villata.

PhD in progress: **Tobias Mayer**, *Argument Mining for Clinical Trials*, UNS, Johan Montagnat (CNRS, I3S), Serena Villata and Céline Poudat (UNS).

PhD in progress: **Thu Huong Nguyen**, *Mining the Semantic Web for OWL Axioms*, Andrea Tettamanzi, UNS.

PhD in progress: **Mahamadou Toure**, *Models and architectures for restricted and local mobile access to the Data Web* , UCA, Fabien Gandon, Moussa Lo (UGB, Senegal).

PhD in progress: **Vorakit Vorakitphan**, *Argumentation and Emotions Emotion Detection with Adaptive Sentiment Analysis*, Elena Cabrio, Serena Villata, UCA.

Internship

Master internship: **ElMahdi Ammari**, GUI builder for WebAudio plugins (WebComponents) developed as part of the WASABI project. Integration into the FAUST IDE.

Master internship: **Antonia Ettorre**, *Modelling and publishing machine-processable curated biodiversity data*, UCA, Franck Michel, Catherine Faron Zucker.

Bachelor internship: **Matthis Lequiniou**, *Applying and comparing state-of-the-art algorithms to predict student's success on the SIDES knowledge graph*, UCA, Catherine Faron Zucker, Oscar Rodríguez Rocha.

Master internship: **Zineb Rahhali**, Machine learning to associate songs with presets of instruments and audio effects encoded in WebAudio.

Master internship: **Yun Tian**, *LinkedDataViz - Visualisation de données sur les co-publications scientifiques à partir de l'application HAL RDF*, Olivier Corby & Marco Winckler (I3S).

Master internship: **Maroua Tikat**, Development of ontologies to describe the WASABI corpus

10.2.3. Juries

Michel Buffa:

Reviewer of Pasquale LISENA PhD : "Recommandation musicale basée sur la connaissance : modèles, algorithmes et recherche exploratoire", defended October 11th, 2019, EURECOM – Sophia Antipolis

Elena Cabrio:
Reviewer and member of the PhD committee of Marco Rovera, University of Turin (Italy), July 2019.
Member of the PhD committee of Yaroslav Nechaev, University of Trento (Italy), April 2019.

Catherine Faron Zucker:

- reviewer of Cassia Trojahn's HDR, entitled *Towards ontology matching maturity: contributions to complex, holistic and foundational ontology matching*, defended on December 12 at Université de Toulouse;

- reviewer of Justine Reynaud's PhD thesis, entitled *Découverte de définitions dans le web des données*, defended on December 10 at Université de Lorraine;

- reviewer of Alexis Lebis' PhD thesis, entitled *Capitaliser les processus d'analyse de traces d'apprentissage : modélisation ontologique & assistance à la réutilisation*, defended on May 22 at Sorbonne Universités;

- reviewer of Tanguy Raynaud's PhD thesis, entitled *Génération de Questions à Choix Multiples Thématiques à Partir de Bases de Connaissances*, defended on February 28 at Université Jean Monnet;

- reviewer of Ademar Crotti Junior's PhD thesis, entitled *A Jigsaw Puzzle Metaphor for Representing Linked Data Mappings*, defended on February 25 at University of Dublin, Ireland;

- external member of the monitoring committee of Stella Zevio's PhD thesis at Université Paris Nord;

- external member of the monitoring committee of Francesco Bariatti's PhD thesis at Université de Rennes;

- external member of the monitoring committee of Pauline Folz's PhD thesis at Université de Rennes.

Fabien Gandon:

- Reviewer HDR Fatiha Sais, entitled *Knowledge Graph Refinement: Link Detection, Link Invalidation, Key Discovery and Data Enrichment*" 20/06/2019

- Member jury HDR Clément Jonquet, Ontology Repository and Ontology-based Services, 26/05/2019

Andrea Tettamanzi was reviewer of the HDR thesis of Nathalie Hernandez, *La centralité des ontologies, du Web Sémantique des utilisateurs au Web Sémantique des objets*, Université de Toulouse 2, December 13, 2019.

10.3. Popularization

10.3.1. Education

Artificial Intelligence training course for high school teachers (Inria Sophia Antipolis) - "Qu'est-ce que l'IA ?" by Jérôme Delobelle.

10.3.2. Interventions

Science Festival ("Fête de la Science") 2019, presentation of the WASABI project by Michel Buffa during "Journées Science et Musique" organized by IRISA in Rennes, October 2019.

10.3.3. Internal action

Presentation of Artificial Intelligence to college students by Jérôme Delobelle during their week-long visit to Inria Sophia Antipolis.

ZENITH Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Florent Masseglia: co-organizer of the first edition of the ADITCA workshop, at CLOSER 2019: http://closer.scitevents.org/ADITCA.aspx?y=2019
- Florent Masseglia:

  of the second edition of the ADITCA workshop, at DATA 2019: http://www.dataconference.org/ADITCA.aspx

10.1.1.2. Member of the Organizing Committees

- A. Joly: organizing committee of the international conference CLEF 2019 and the chair of the LifeCLEF track, Lugano, sept. 2019 (http://clef2019.clef-initiative.eu/)

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Artificial Intelligence & Knowledge Engineering (AIKE), 2019: F. Masseglia
- European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (PKDD), 2019: F. Masseglia
- Int. Conf. on Data Science, Technology and Applications (DATA), 2019: F. Masseglia
- Int. Conf. on Information Management and Big Data (SIMBig), 2019: F. Masseglia
- IEEE Int. Conf. on Data Mining (ICDM), 2019: F. Masseglia
- ACM Symposium on Applied Computing (ACM SAC), Data Mining Track (DM), 2019: F. Masseglia
- ACM Symposium on Applied Computing (ACM SAC), Data Stream Track (DS), 2019: F. Masseglia
- Extraction et Gestion des Connaissances (EGC), 2019: F. Masseglia
- Int. Conf. on Extending DataBase Technologies (EDBT), 2019: E. Pacitti
- Int. Conf. on Multimedia Retrieval (ICMR), 2019: A. Joly
- Int. Conf. on Acoustics, Speech, and Signal Processing (ICASSP), 2019: A. Joly, A. Liutkus
- Int. Conf. on Computer Vision (CVPR), 2019: A. Joly
- Int. Conf. and Labs of the Evaluation Forum (CLEF), 2019: A. Joly
- European. Conf. on Information Retrieval (ECIR), 2019: A. Joly
- EAI Int. Conf. on e-Infrastructure and e-Services for Developing Countries (AFRICOMM 2019): P. Valduriez.
- Bases de Données Avancées (BDA), 2019: E. Pacitti, R. Akbarinia
- IEEE/ACM Int. Symposium in Cluster, Cloud, and Grid Computing (CCGrid) 2019: Esther Pacitti

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- VLDB Journal: P. Valduriez.

- Transactions on Large Scale Data and Knowledge Centered Systems: R. Akbarinia.
- Distributed and Parallel Databases: E. Pacitti, P. Valduriez.
- Book series "Data Centric Systems and Applications" (Springer): P. Valduriez.
- Plant Methods: C. Pradal.

10.1.3.2. Reviewer - Reviewing Activities

- EVISE Future Generation Computer Systems Journal (FGCS): F. Masseglia
- Information Systems (IS): T. Mondal, F. Masseglia
- Distributed and Parallel Databases (DAPD): E. Pacitti, P. Valduriez
- IEEE Transactions on Knowledge and Data Engineering (TKDE): R. Akbarinia, F. Masseglia
- IEEE Transactions on Industrial Informatics: R. Akbarinia
- Knowledge and Information Systems (KAIS): R. Akbarinia
- Plant methods: A. Joly
- Machine Learning: A. Joly
- Pattern Recognition Letters: A. Joly
- Transactions on Image Processing: A. Joly
- ACM Trans. on Database Systems: E. Pacitti
- Knowledge and Information Systems (KAIS): F. Masseglia
- IEEE Transaction on Signal Processing (TSP): A. Liutkus
- IEEE Transactions on Audio Speech and Language Processing (TASLP): A. Liutkus
- IEEE Signal Processing Magazine: A. Liutkus
- IEEE Signal Processing Letters: A. Liutkus
- Frontiers in Plant Science: C. Pradal
- Neural Information Processing Systems (NeurIPS): A. Liutkus
- Int. Conf. on Machine Learning (ICML): A. Liutkus
- Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP): A. Liutkus

10.1.4. Invited Talks

- E.Pacitti: Inaugural lecture, "Data Processing: an evolutionary and multidisciplinary perspective", CEFET/RJ, Rio de Janeiro on 12 August 2019.
- A. Joly: "AI for plant phenology" on 17 January at a workshop of the University of Florida (keynote); "AI for plant biodiversity monitoring" on 7 November at HPC-AI-BigData Convergence days (Conv' 2019); "An end-to-end deep learning approach to biodiversity monitoring", on 12 December at British Ecological Society conference (BES 2019);
- A. Liutkus: tutorial on "music source separation" at Int. Symposium on Music Information Retrieval (ISMIR 2018).
- F. Masseglia: "Données, humanités et démarche scientifique". Panel at the Inria Science Days (Journées Scientifiques Inria), on June 6, Lyon; "Analyse de données scientifiques". IRD, on June 27, Montpellier. "Analyse de données à grande échelle". TILECS Workshop. on July 4, Grenoble.
- P. Valduriez: "The Case for Hybrid Transaction Analytical Processing" on 25 April at IBM Research Brazil, Rio de Janeiro, Brazil; "Blockchain 2.0: opportunities and risks" on 14 Nov at Online Franco-African LIRIMA Seminar, Inria, Rennes; "Data-intensive Science" on 6 Nov. at HPC- AI-BigData Convergence Days (Conv'2019), EDF Lab Paris-Saclay; tutorial "NewSQl: principles, systems and trends" on 12 Dec at IEEE Bigdata 2019; participation in panel "Big Data Heterogeneity Challenges" on 11 Dec at IEEE Bigdata 2019; "Scalable transaction and polystore data management in LeanXcale" on 6 Dec at UC Berkeley and on 13 Dec at UCLA and UC Irvine.

- C. Pradal: "Multiscale plant modelling and Phenotyping" on 8 october at Tottori University and on 16 october at Nagoya University, Japan; workshop on plant modelling on 28 october at Tokyo University, Japan.

10.1.5. Leadership within the Scientific Community

- A. Joly: Scientific manager of the LifeCLEF research forum.
- A. Liutkus: elected member of the IEEE Technical Committee on Audio and Acoustic Signal Processing.
- P. Valduriez: President of the Steering Committee of the BDA conference.

10.1.6. Scientific Expertise

- F. Masseglia: expert for the HCERES evaluation of the DAVID Lab (UVSQ). January 2019.
- R. Akbarinia: expert for the French National Research Agency (ANR).
- A: Joly: scientific advisory board of the ANR program "AI for biodiversity", expert for the National HPC grand equipment (GENCI) "grand challenge" program, reviewer for STIC AmSud international program.
- E. Pacitti: reviewer for STIC AmSud international program.
- P. Valduriez: reviewer for STIC AmSud international program.
- P. Valduriez: reviewer for NSERC (Canada).
- C. Pradal: member of CSS EGBIP (Commissions Scientifiques Spécialisées) INRA.

10.1.7. Research Administration

- A. Joly: Technical director of the InriaSOFT consortium Pl@ntNet and representative of Inria in the steering committee.
- F. Masseglia: "Chargé de mission pour la médiation scientifique Inria" and head of Inria's national network of colleagues involved in science popularization.
- E. Pacitti: head of Polytech' Montpellier's Direction of Foreign Relationships.
- P. Valduriez: scientific manager for the Latin America zone at Inria's Direction of Foreign Relationships (DPEI).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Most permanent members of Zenith teach at the Licence and Master degree levels at UM2.

Esther Pacitti:

IG3: Database design, physical organization, 54h, level L3, Polytech'Montpellier, UM2

IG4: Networks, 42h, level M1, Polytech' Montpellier, 50 students, UM2

IG4: Distributed Databases, Big Data, 80h , level M1, Polytech' Montpellier, 50 students UM2

IG5: Iot- Information Management, 27h, level M2, Polytech' Montpellier, 15 students, UM2

Industry internship supervision and committees, level M2, Polytech' Montpellier, 40h

Patrick Valduriez:

Professional: Distributed Information Systems, Big Data Architectures, 75h, level M2, Capgemini Institut

Alexis Joly:

>University of Montpellier: Machine Learning, 15h, level M2
>
>Polytech' Montpellier: Content-Based Image Retrieval, 4.5h, level M1
>
>AgroParisTech: Convolutional Neural Networks in Ecology and Agronomy, 2h, level M1
>
>InnObs technical school: Innovations in the observation of seasonal biological events and associated data management, 6h, professionals.

Antoine Liutkus

>University Paul Valery (Montpellier): multidimensional data analysis, 15h, level M1
>
>Polytech' Montpellier: Audio Machine Learning, 1.5h, level M1

10.2.2. Supervision

PhD & HDR:

>HDR: Reza Akbarinia, Parallel Techniques for Big Data Analytics, Univ. Montpellier, 24 May.
>
>PhD: Renan Souza, Massively Distributed Clustering, UFRJ, Brazil, 17 Dec. Advisors: Marta Mattoso (UFRJ), Patrick Valduriez.
>
>PhD: Mathieu Fontaine, Alpha-stable models for signal processing, IAEM, Nancy, 18 July. Advisors: Roland Badeau (Telecom Paris), Antoine Liutkus.
>
>PhD: Christophe Botella, Large-scale Species Distribution Modelling based on Citizen Science data, Montpellier, 8 October. started Oct 2016, Univ. Montpellier. Advisors: Alexis Joly, François Munoz (univ. of Grenoble), Pascal Monestiez (INRA).
>
>PhD in progress: Gaetan Heidsieck, Distributed Management of Scientific Workflows for High-Throughput Plant Phenotyping, started Oct 2017, Univ. Montpellier. Advisors: Esther Pacitti, Christophe Pradal, François Tardieu (INRA).
>
>PhD in progress: Heraldo Borges, Discovering Tight Space-Time Sequences, started Oct 2018, Univ. Montpellier. Advisors: Esther Pacitti, Eduardo Ogaswara.
>
>PhD in progress: Titouan Lorieul, Pro-active Crowdsourcing, started Oct 2016, Univ. Montpellier. Advisor: Alexis Joly.
>
>PhD in progress: Khadidja Meguelati, Massively Distributed Clustering, started Oct 2016, Univ. Montpellier. Advisors: Nadine Hilgert (INRA), Florent Masseglia.
>
>PhD in progress: Lamia Djebour, Parallel Time Series Indexing and Retrieval with GPU architectures, started Oct 2019, Univ. Montpellier. Advisors: Reza Akbarinia, Florent Masseglia.
>
>PhD in progress: Quentin Leroy, Active learning of unknown classes, started Oct 2019, Univ. Montpellier, Industrial contract with INA, Advisors: Alexis Joly

10.2.3. Juries

Members of the team participated to the following PhD or HDR committees:

- R. Akbarinia: Chao Zhang (Univ. Clermont Auvergne, reviewer)
- A. Joly: Christophe Botella (Univ. of Montpellier, advisor)
- F. Masseglia: Rebecca Pontes Salles (Master thesis of 2.5 years, CEFET, Rio de Janeiro), Ricardo Sperandio (Univ. Rennes, reviewer), Thibault Desprez (Univ. Bordeaux, reviewer).
- E. Pacitti: Daniel de Oliveira Junior (Univ. Federal Fluminense, Brazil)
- E. Pacitti: Heraldo Borges Phd qualification (CEFET, Brazil)
- P. Valduriez: Alexandru Costan (HDR, ENS Rennes, reviewer), Patricio Cerda (Univ. Paris Saclay, reviewer), Renan Souza (UFRJ, Rio de Janeiro, advisor)
- E. Pacitti: Selection Committe for professor position (University of Montpellier)

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

F. Masseglia is "Chargé de mission auprès de la DGD-S Inria pour la médiation scientifique" (50% of his time) and heads Inria's national network of colleagues involved in science popularization.

10.3.2. Articles and contents

- F. Masseglia is co-author of [21], [40] on the feedback of Class'Code after 3 years of project and on a vision about future work for computational thinking education and computer science popularisation.
- A. Joly has given several interviews to different media giving rise to web articles about Pl@ntNet (see e.g. Google news with keyword Pl@ntNet).

10.3.3. Education

Computer science is, for the first time in France, an official discipline taught in high school (Lycée) with the common course about "Sciences Numériques et Technologie". As written by Inira's CEO Bruno Sportisse: *"For over a decade, the institute has carried out actions that have paved the way with the firm conviction that "training in and through digital technology" is strategic: I am thinking here, in particular, of the Class'Code project."*

F. Masseglia is the initiator, with Serge Abiteboul, of the program called "1 scientifique — 1 classe : Chiche !" with the goal of reaching *all* the students of a specific level. This massive plan should concern all scientists at Inria and our partners in France.

F. Masseglia was ambassador of Inria for the Science Celebration Day (Fête de la science):
- https://www.youtube.com/watch?v=13957C9FxVg
- https://www.youtube.com/watch?v=ypnQe91Pztc

F. Masseglia gave a one day training on the Thymio robot for education in the media library networkprofessionals. February 1. Montpellier. 18 attendees.

F. Masseglia gave a one day training to teachers of French National Education on computational thinking. March 12. Montpellier. 20 attendees.

F. Masseglia gave a one day training to teachers in pediatric hospitals (CHU Arnaud de Villeneuve). February 2. Montpellier. 10 attendees.

F. Masseglia gave two days of training to computer science, robotics and computational thinking to reference teachers ("conseillers pédagogiques"). April 15 & 16. Montpellier. 20 attendees.

F. Masseglia gave two days of training to the media library network professionals on Poppy Ergo Jr. June 28 & September 6. Montpellier. 11 attendees.

F. Masseglia is a member of the scientific committee of a conference cycle on "Science and Society" organised with MSHSud.

P. Valduriez gave an invited talk on "Succeed in your Ph.D. Thesis: good practices and return of experience" at the Ph.D. meeting at LIRIS, Lyon, on Dec 11.

A. Joly was a member of the scientific advisory board of the AI Family Challenge organized by the NGO Iridescent that "supports girls, children, and their families to identify problems in their communities and find technology based solutions".

He organized an educational outing at the Montpellier Botanical Garden as part of the summer school organized each year by Polytech Montpellier (June 11). He participated in the organization and animation of the "wild salad" training organized by the association "Les écologistes de l'Euzière" 13-15 March.

10.3.4. Interventions

F. Masseglia participated in the LIRMM events on science popularisation ("Fête de la science" on Feb 19, "accueil de stagiaires" on Oct 11), Montpellier.

A. Joly participated in: the animation of the Inria stand at the SIDO exhibition (April 10-11, Lyon); the Pl@ntNet launch ceremony in Costa Rica in the presence of the Minister of Research and decision-makers (April 20).

E. Pacitti participated in Polytech'Montpellier International Summer School (Flow) on the subject of Data Science - Plant Phenotyping.

A. Joly participated in the day "Ramène ta science" co-organized by TelaBotanica and "Sciences Avenir" associations at the Halle Tropisme in Montpellier (as part of the Labbota initiative). He co-facilitated a participatory workshop and a debate with citizens on the theme of participatory science.

10.3.5. Creation of media or tools for science outreach

In the context of the Floris'tic project, A. Joly participates regularly to popularization, educational and citizen science actions in France (with schools, cities, parks, associations, etc.). The softwares developed within the project (Pl@ntNet, Smart'Flore and ThePlantGame) are used in a growing number of formal educational programs and informal educational actions of individual teachers. For instance, Smart'Flore is used by the French National Education in a program for reducing early school leaving. Pl@ntNet app is used in the Reunion island in an educational action called Vegetal riddle organized by the Center for cooperation at school. It is also used in a large-scale program in Czech republic and Slovakia (with a total of 100 classrooms involved in the program). An impact study of the Pl@ntNet application did show that 6% of the respondents use it for educational purposes in the context of their professional activity.

F. Masseglia participated in the work group on "Jeu des 7 familles de l'informatique". This card game provides support for education to computer science from the history point of view.

A. Joly actively participates to the design and development of all Pl@ntNet dissemination tools in particular Pl@ntNet web site that contains contents for the press, articles for the general public, tutorials of Pl@ntNet tools, guidelines for users of the API, etc.