Activity Report 2018

Section Dissemination

<h1 style="text-align:center; color:red">ABS Project-Team</h1>

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events Organisation

7.1.1.1. Member of the Organizing Committees

– Frédéric Cazals was member of the advisory board of:

- *Algorithms in Structural Bio-informatics*. The 2018/2019 edition (January 2019, CIRM, Marseille) focuses on RNA bioinformatics. See https://algosb2019.sciencesconf.org/.

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 Geometry Processing
- Symposium on Solid and Physical Modeling
- Intelligent Systems for Molecular Biology (ISMB) / Protein Interactions & Molecular Networks
- IEEE International Conference on BioInformatics and BioEngineering

7.1.3. Journal

7.1.3.1. Reviewer - Reviewing Activities

– Frédéric Cazals reviewed for the following journals:

- Journal of computational geometry
- PLOS Computational Biology

– Dorian Mazauric reviewed for the following journal and conference:

- Theoretical Computer Science
- 16th Workshop on Approximation and Online Algorithms (WAOA 2018)

7.1.4. Invited Talks

– Frédéric Cazals gave the following invited talks:

- *Energy landscapes: sampling, analysis, comparison*, RNA Kinetics days, Ecole polytechnique, October 2018.
- *Randomized algorithms for volume/density of states calculations in high-dimensional spaces*: Energy landscapes, Kalamata, Greece, September 2018;
- *Randomized algorithms for volume/density of states calculations in high-dimensional spaces*: Advances in Computational Statistical Physics, CIRM, France, September 2018.
- *Understanding scoring/energy landscapes: a tale of local minima and density of states*, Meet-U: when proteins meet each other, January 2018, Paris.

7.1.5. 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-.... 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/).

7.1.6. 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:

- 2016-2019. Member of the *Comité de Centre*, Inria Sophia Antipolis - Méditerranée.
- 2018-.... 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, 36 h TD, niveau M1, École Polytechnique de l'Université Nice Sophia Antipolis, filière Sciences Informatiques, France.

7.2.2. Supervision

- **PhD:** Romain Tetley, *Mixed sequence-structure based analysis of proteins, with applications to functional annotations*, defended on the 21/11/2018. Université Côte d'Azur.
- **PhD in progress, 4th year:** Augustin Chevallier, *Random walks for estimating the volume of convex bodies and densities of states in high dimensional spaces*, defense scheduled in February 2019. Université Côte d'Azur.
- **PhD in progress, 2nd year:** Denys Bulavka, *Modeling macro-molecular motions*. Université Côte d'Azur. Under the supervision of Frédéric Cazals.
- **PhD in progress, 2nd 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, 1st 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, 1st 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:

- Hugo Schweke, Paris-Saclay University, December 2018. Rapporteur on the PhD thesis *Développement d'une méthode* in silico *pour caractériser le potentiel d'interaction des surfaces protéiques dans un environnement encombré*. Advisors: Marie-Hélène Mucchielli-Giorgi and Anne Lopes.
- Julien Ogor, ENSTA Bretagne, May 2018. Rapporteur on the PhD thesis *Design of algorithms for the automatic characterization of marine dune morphology and dynamics*. Advisor: B. Zerr.
- Rodrigo Dorantes-Gilardi, University of Lyon, April 2018. Rapporteur on the PhD thesis *Bio-Mathematical aspects of the plasticity of proteins*. Advisors: L. Vuillon and C. Lesieur.

– Dorian Mazauric:

- Romain Tetley, Université Côte d'Azur, Novembre 2018. PhD thesis *Mixed sequence-structure based analysis of proteins, with applications to functional annotations*. Advisor: Frédéric Cazals.

7.3. Popularization

This part mainly concerns Dorian Mazauric.

7.3.1. Internal or external Inria responsibilities

- Member of Mastic Commission (Médiation et Animation scientifiques Inria Sophia Antipolis - Méditerranée).

- Coordinator of the popularization project GALEJADE (Graphes et ALgorithmes : Ensemble de Jeux À Destination des Écoliers (mais pas que)) founded by Inria, Fondation Blaise Pascal, and Université Côte d'Azur. See https://galejade.inria.fr.

- Coordinator of the internships for undergraduates of middle school (niveau collège, troisième) at Inria Sophia Antipolis - Méditerranée (12 interns during one week).

7.3.2. Articles and contents

Frédéric Cazals published the following opinion article:

- *Recherche et développement : les entreprises françaises n'ont pas de vision*, Le Monde, April 2018. See https://www.lemonde.fr/sciences/article/2018/04/20/r-d-les-entreprises-francaises-n-ont-pas-de-vision_5288104_1650684.html.

Dorian Mazauric published online contents and posters. See https://galejade.inria.fr.

7.3.3. Education

- Trainings for 100 future teachers at ÉSPÉ (École SupÉrieure du Professorat et de l'Éducation) of Académie de Nice.

- Two trainings for 60 teachers of Cycle 3 (Le Cannet).

- Trainings for 20 teachers at numeric culture week-end organised by Class'Code MED.

7.3.4. Interventions

- National events:
  - Fête de la Science : Village des Sciences de Vinon-sur-Verdon, Juan-les-Pins, Villeneuve-Loubet et Mouans Sartoux : *La magie des graphes et du binaire, Algorithmes grandeur nature et jeux combinatoires*.
  - Semaine des maths : Conferences and activities at Centre International de Valbonne. With Christophe Godin. *Réfléchir pour Calculer ou Calculer pour Réfléchir*.
  - Conferences and activities at salon Code & Play 2018. *Graphes et algorithmes ? Jeux grandeur nature : algorithme de plus court chemin, algorithme de tri avec des cerceaux et des lattes en plastique – La magie des graphes et du binaire : tours de magie*.

- In educational institutions:
  - Two trainings for 60 teachers of Cycle 3 (Le Cannet).
  - Trainings for 100 future teachers at ÉSPÉ (École SupÉrieure du Professorat et de l'Éducation) of Académie de Nice.
  - High school: Conferences at Centre International de Valbonne. *Pas besoin de réfléchir, les ordinateurs calculent tellement vite ? Théorie des graphes et algorithmique*.
  - Middle school: Conferences at collège Alphonse Daudet of Nice and conferences at collège Jules Verne of Cagnes-sur-Mer. *La magie des graphes et du binaire*.
  - Primary: Conferences at École élémentaire of Tourrettes-sur-Loup. With Florence Barbara.

- Welcoming of schoolchildren or the general public in an Inria center:
  - MathC2+ internship: Activity for 40 students (high school). With Maria Guramare. *Algorithmes grandeur nature pour le calcul du plus court chemin et pour trier*.

– Open days of Inria Sophia Antipolis - Méditerranée: *La magie des graphes, des algorithmes et du binaire*.

– Presentation for twelve interns of middle school (niveau collège, troisième) by Frédéric Cazals.

7.3.5. Creation of media or tools for science outreach

- Creation of the website of the popularization project GALEJADE (Graphes et ALgorithmes : Ensemble de Jeux À Destination des Écoliers (mais pas que)) founded by Inria, Fondation Blaise Pascal, and Université Côte d'Azur. See https://galejade.inria.fr.

- Development of wooden objects for the dissemination of the scientific culture: wooden plateau for graph algorithms and convex hull, chocolate bar game made by 3D printers, kakemonos... See https://galejade.inria.fr/francais-pret-de-materiel/.

ACUMES Project-Team

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 *"HYP2018 - Conference on Hyperbolic Problems: Theory, Numerics, and Applications"*, Penn State (USA), June 2018.
- P. Goatin was member of the scientific committee of *"PED2018 - Conference on Pedestrian and Evacuation Dynamics"*, Lund (Sweden), August 2018.

9.1.1.2. Member of the Organizing Committees

- P. Goatin and M.L. Delle Monache (Inria Grenoble) organized the mini-symposium *"Modélisation et gestion du trafic routier"*, CANUM 2018 - 44e Congrès National d'Analyse Numérique, Cap d'Agde (France), May 2018.
- P. Goatin and J. Pettré (Inria Rennes) organized the workshop *"Modélisation du piéton et de la foule en mouvement"*, Saclay (France), November 2018.
- P. Goatin was member of the organizing committee of the workshop *"Mathematical modeling with measures: where applications, probability and determinism meet"*, Lorentz Center, Leiden (The Netherlands), December 2018.
- R. Duvigneau and A. Habbal are members of the OC for the FGS French-German-Swiss Conference on Optimization, Nice, September 2019.

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

- A. Habbal was PC member of the African Conference on Research in Computer Science and Applied Mathematics (CARI 2018), Stellenbosch, South Africa
- P. Goatin was member of the International Program Committee of *"CTS2018 - 15th IFAC Symposium on Control in Transportation Systems"*, Savona (Italy), June 2018.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- P. Goatin is Managing Editor of *Networks and Heterogeneous Media*.

9.1.3.2. Reviewer - Reviewing Activities

- J.-A. Désidéri has made reviews for *Mathematical Problems in Engineering* (Hindawi Publishing Corporation) and *Numerical Algorithms* (Springer),
- R. Duvigneau is a reviewer for the following international journals : Computers & Fluids, International Journal for Numerical Methods in Fluids, Computer Methods for Applied Mechanical Engineering, Computer Aided Geometric Design, Applied Mathematics & Mechanics, Engineering Optimization.
- P. Goatin reviewed for the following international journals: SIAM Journal of Applied Mathematics; Networks and Heterogeneous Media; European Journal of Applied Mathematics; Journal of Advanced Transportation; IEEE Transactions on Intelligent Transportation Systems; Discrete and Continuous Dynamical Systems A.

- A. Habbal is reviewer for the following international journals: Journal of Structural and Multidisciplinary Optimization ; Journal of Math. Model. Nat. Phenom. ; Int. Journal of Mathematical Modeling and Numerical Optimization; Journal of Differential Equations; American Mathematical Society Reviews; European Journal of Operation Research (EJOR); Journal of Optimization Theory and Algorithms (JOTA).

9.1.4. Invited Talks

- F.A. Chiarello: Interactive workshop on hyperbolic equations, University of Ferrara (Italy), September 2018.
  Invited talk: *"Non-local multi-class traffic flow models"*.

- J.-A. Désidéri: Prioritized Multiobjective Optimization Using Nash Games - Towards Adaptive Optimization, ONERA, Toulouse, December 20, 2018.

- P. Goatin: ECMI 2018 - 20th European Conference on Mathematics for Industry, Budapest (Hungary), June 2018.
  Plenary talk: *"Traffic management by macroscopic models"*.

- P. Goatin: 14th Franco-Romanian Conference on Applied Mathematics, Bordeaux (France), August 2018.
  Plenary talk: *"Traffic management by macroscopic models"*.

- P. Goatin: Rencontres Normandes sur les aspects théoriques et numériques des EDP, Rouen (France), November 2018.
  Invited talk: *"Conservation laws with local constraints arising in traffic modeling"*.

- P. Goatin: LIA COPDESC Workshop "Analysis, control and inverse problems for PDEs", Napoli (Italy), November 2018.
  Plenary talk: *"Traffic control by autonomous vehicles"*.

- P. Goatin: CDC 2018 - 57th IEEE Conference on Decision and Control, Miami, FL (USA), December 2018. Workshop "Traffic Flow Control via PDE Techniques".
  Invited talk: *"Macroscopic modeling of traffic control by autonomous vehicles"*.

- A. Habbal: XI NPU-UTC Sino-French Seminar on Mechanics and Design of Advanced Material and Structures Symposium, Xi'An, China, April 2018.
  Plenary talk: *Games to solve Joint Data Completion and Obstacle Detection in Stokes Problems*.

- A. Habbal: Univ. Wurzburg Chair of Mathematics (Scientific Computing) Mathematical Colloquium, Wurzburg, May 2018.
  Plenary talk: *Games to solve Joint Data Completion and Obstacle Detection in Stokes Problems*.

- A. Habbal: Conference on Inverse Problems, Control and Shape Optimization (PICOF) Beirut, Lebanon, June 18-20 2018.
  Invited talk: *Detection of inclusions while recovering boundary data in Stokes Flows using Nash strategies*.

- A. Habbal: University Mohamed V, Rabat, June 2018.
  Plenary talk: *Avoidance mechanisms arising as Nash equilibria in Fokker-Planck constrained games*.

- E. Rossi: IFIP TC 7 Conference on System Modelling and Optimization, Essen (Germany), July 2018. Workshop "Modeling and optimization of networked systems".
  Invited talk: *"Crowd dynamics in domains with boundaries"*.

9.1.5. Scientific Expertise

- P. Goatin was proposals reviewer for FONDECYT program of CONICYT (National Committee of Science and Technology Research, Chile), 2018.

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 member of BCP ("Bureau du Comité des Projets") at Inria Sophia Antipolis Méditerranée (until August 2018).

- P. Goatin was member of the admission committee for Inria 2018 competitive selection of senior researchers (DR2).

- R. Duvigneau is member of CSD ("Comité Suivi Doctoral) at Inria Sophia Antipolis Méditerranée.

- R. Duvigneau is responsible for the Immersive Space Committee at Inria Sophia Antipolis Méditerranée.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: Advanced Optimization, 40.5 hrs, M2, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (J.-A. Désidéri, R. Duvigneau).

Master: Conservation laws and finite volume scheme, 30 hrs, M2, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (P. Goatin).

Master: Multidisciplinary Optimization, 22.5 hrs, joint *Institut Supérieur de l'Aéronautique et de l'Espace* (ISAE Supaéro, "Complex Systems") and M2 (Mathematics), Toulouse (J.-A. Désidéri).

Licence: Summer Project in Mathematical Modeling, 36 hrs, L3, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

Master: Numerical Methods for Partial Differential Equations, 66 hrs, M1, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal and R. Duvigneau).

Master: Optimization, 66 hrs, M1, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

Master: Modeling strategies for e-Formula races, 10 hrs, M1 Students Project, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

Master: Multi-agents Systems, 10 hrs, M1 Students Project, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

Master: Modeling and simulation of electric mobility, 10 hrs, M1 Students Project, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

Licence (L3): Implement and Experiment PSO, 48hrs, L3 Semester Project, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

Graduate autumn school "Theoretical and numerical aspects of PDEs", Rouen (France), November 2018. Lecture: *"Macroscopic traffic flow models on networks"* (P. Goatin).

9.2.2. Supervision

PhD in progress: Rabeb Chamekh, *Game strategies for thermo-elasticity*, Jan 2015, Supervisors: A. Habbal, Moez Kallel (LAMSIN, ENIT, Tunis)

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 in progress: Kelthoum Chahour, *Modeling and optimal design of coronary angioplastic stents*, Nov 2015, Supervisors: A. Habbal, Rajae Aboulaich (LERMA, EMI, Rabat)

PhD defended in June 2018: C. Durantin, *Métamodélisation et optimisation de dispositifs photoniques* (Meta-modelling and Optimization for nanophotonic devices), University of Nice - Sophia Antipolis, June 2018. Supervisors: J.-A. Désidéri and A. Glière (CEA LETI).

PhD defended in October 2018: Q. Mercier, *Algorithme de descente pour la résolution de problèmes d'optimisation multiobjectif sous incertitudes* (Descent Algorithm for the solution of multi-objective optimization problems under uncertainties), University of Nice - Sophia Antipolis, October 2018. Supervisors: J.-A. Désidéri and F. Poirion (ONERA Châtillon).

PhD defended in December 2018: A. Azaouzi, *isogeometric analysis methods for hyperbolic systems*, ENIT (Tunisia) / University of Nice - Sophia Antipolis, Oct. 2018. Supervisors: R. Duvigneau and M. Moakher (ENIT).

PhD defended in November 2018 : Sosina Mengistu-Gashaw (EURECOM), *Mobility and connectivity modelling of 2-wheels traffic for ITS applications* , March 2015. Supervisors: P. Goatin and J. Härri (EURECOM).

PhD defended in September 2018: M. Sacher, *advanced methods for numerical optimization of yacht performance*, Ecole Navale , Oct. 2014. Supervisors: R. Duvigneau, O. Le Maitre (LIMSI), F. Hauville and J.-A. Astolfi (Ecole Navale).

PhD defended in July 2018: C. Fiorini, *Sensitivity equation method for hyperbolic systems*, Univ. Versailles, Oct. 2014. Supervisors: R. Duvigneau, C. Chalons (Univ. Versailles).

PhD in progress: S. Pezzano, *Isogeometric analysis with moving grids*, Univ. Nice Sophia-Antipolis. Supervisor: R. Duvigneau.

PhD in progress : Nicolas Laurent-Brouty (ENPC), *Macroscopic traffic flow models for pollution estimation and control*, September 2016. Supervisor: P. Goatin.

PhD in progress : Felisia Angela Chiarello (Université de Nice Sophia Antipolis), *Conservation laws with non- local flux*, October 2016. Supervisor: P. Goatin .

PhD in progress : 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).

9.2.3. Juries

- R. Duvigneau was member of the committee of P. Ploe's PhD thesis *"Surrogate based optimization of hydrofoil shapes using RANS simulations"*, Ecole Centrale de Nantes, June 26th, 2018.

- R. Duvigneau was member of the committee of F. Mastrippolito's PhD thesis *"Optimisation de forme numérique de problèmes multiphysiques et multiéchelles : application aux échangeurs de chaleur"*, Ecole Centrale de Lyon, December 14th, 2018.

- P. Goatin was referee of M. Pfirsching's PhD thesis *"A multi-scale model for material flow problems based on a non-local conservation law: simulation and optimization"*, Universität Mannheim, April 11th, 2018.

- J.-A. Désidéri was referee of T. Achard's PhD. Thesis *Techniques de calcul du gradient aéro-structure haute-fidélité pour l'optimisation de voilures flexibles* (Techniques for computing the high-fidelity aero-structural gradient for the optimization of flexible wings), CNAM, Paris, December 2017.

- J.-A. Désidéri was a member of the jury of J. Mas Colomer's Phd. Thesis *Similitude Aéroélastique d'un Démonstrateur en Vol via l'Optimisation Multidisciplinaire* (Aeroelastic similarity of a Flight Demonstrator via Multidisciplinary Optimization), University of Toulouse, December 2018.

9.3. Popularization

9.3.1. Articles and contents

- Press article: *Dossier. Cette mathématicienne met le trafic en équation pour réduire les embouttillages*, Nice Matin, August 2018 (P. Goatin).

- TV interview for the program "Dimanche en politique", France 3 Côte d'Azur channel, October 14, 2018 (P. Goatin).

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

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. General Chair, Scientific Chair

Evelyne Hubert was the general and scientific chair for the conference *Symmetry and Computation* held at the Centre International de Recherche en Mathematiques (Marseille, France) April 3-7.

8.1.1.2. Member of the Organizing Committees

Laurent Busé organized the second "Learning Week" of the ARCADES Network : "Opportunity Recognition" at Inria Sophia Antipolis, March 19-23, 2018.

8.1.2. Scientific Events Selection

8.1.2.1. Reviewer

Bernard Mourrain was reviewer for the conference ISSAC.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

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).

Ioannis Emiris is associate editor of the Journal of Symbolic Computation (since 2003) and of Mathematics for Computer Science (since 2017).

Evelyne Hubert is associate editor of the Journal of Symbolic Computation (since 2007) and of Foundations of Computational Mathematics (since 2017).

8.1.3.2. Reviewer - Reviewing Activities

Laurent Busé reviewed for the journal *Linear Algebra and its Applications*, the journal *Computer Aided Geometric Design*, the journal of *Advances in Applied Mathematics*, the *Journal of Computational and Applied Mathematics*, the journal *Applicable Algebra in Engineering, Communication and Computing*, the journal *Computer Aided Design*, the *SIAM Journal on Applied Algebra and Geometry*.

Ioannis Emiris reviewed for the *SIAM Journal on Applied Algebra and Geometry*, the *Symposium of Computational Geometry*.

Bernard Mourrain reviewed for the *Journal of Algebra and its Application*, the journal *Computer Methods in Applied Mechanics and Engineering*, the journal *Computer Aided Geometric Design*, the *Journal of Computational and Applied Mathematics*, the *Journal of Symbolic Computation*, the journal *Mathematics of Computation*. He is also guest editor of the Special Issue of the *Journal Of Symbolic Computation* after MEGA 2017 [24].

Evelyne Hubert reviewed for the *Journal of Symbolic Computation*, the journal *Foundations of Comptutational Mathematics*, and the *Journal of Algebra*.

8.1.4. Invited Talks

Laurent Busé was an invited speaker at the conference "Applied and Computational Geometry" that took place at Loughborough University, Centre for Geometry and Applications, September 12-14, 2018.

Ioannis Emiris was an invited speaker at JRC Ispra, Italy, February 2018, at JK University (and gave a course), Linz, Austria, April-May 2018, at the "2nd Intern. Workshop on Geometry and Machine Learning", within Computational Geometry Week, Budapest, Hungary, June 2018, at the "Symposium on Discrete Mathematics", of the German Mathematical Society, Graz, Austria, June 2018, at CHIPSET Training School on Large-Scale Data Mining and Machine Learning for Big Data Analytics (and gave a course), Thessaloniki, 19 September 2018.

Bernard Mourrain was an invited speaker at the Workshop "Structured Matrix Days", Lyon, 14-15 May, at the International conference on Approximation and Matrix Functions, Lille, May 31 - June 1, at the Workshop "Tensors" (and gave a course), Torino, 10-14 September, at the Workshop "A two-day journey in Computational Algebra and Algebraic Geometry" dedicated to Margherita Roggero, Torino, 27-28 Sep. He was invited at Univ. of Texas, Austin, for a collaboration with Pr. Chandajit Bajaj (29 January - 9 February), an invited participant of the semester on Nonlinear Algebra at ICERM, Providence, RI, USA from 1 to 19 Oct.

Evelyne Hubert gave a keynote lecture at the conference *Symmetry & Computation*, CIRM (Marseille, France) and was invited to give talks at the conference *Algebraic and Geometric Aspects of Numerical Methods for Differential Equations* held at the Mittag-Leffler Institute (Stockholm, Sweden), the *Séminaire différentiel*, jointly organized by Université Versailles St Quentin and Inria SIF, and the conference *Nonlinear Algebra in Applications* held at the Institute for Computational and Experimental Mathematics (Providence, USA).

8.1.5. *Scientific Expertise*

Evelyne Hubert was part of the hiring committees for the positions of Directeur de Recherche 2ème classe at Inria and for the position of Chargé de Recherche at Inria NGE. As part of the Commission d'Evaluation, she was also part of the promotion committee of Inria researchers (CRHC, DR1, DR0).

Evelyne Hubert was the external reviewer for the promotion of Wei Li to the rank of associate professor at the Chinese Academy of Science (Beijing).

8.1.6. *Research Administration*

Laurent Busé is a board member of the (national) labex AMIES (CRI-SAM representative) and a member of the steering committee of the MSI, *Maison de la Modélisation, de la Simulation et des Interactions* of the University Côte d'Azur. He is also an elected member of the CPRH (Commission Permanente de Ressources Humaines) of the math laboratory of the university of Nice, and is the Inria Sophia Antipolis centre representative at the "Academic Council" and the "Research Commission" of the University of Nice Sophia Antipolis. He participated to the hiring jury of junior researchers in Inria Sophia Antipolis.

Evelyne Hubert is a member of the Comission d'Evaluation, the national Inria evaluation committee. She is nominated to represent Inria at the Academic Council of the Université Côte d'Azur.

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

8.2. Teaching - Supervision - Juries

8.2.1. *Teaching*

- Master : Laurent Busé, Geometric Modeling, 27h ETD, M2, EPU of the University of Nice-Sophia Antipolis.
- Master 2: Bernard Mourrain, Symbolic-Numeric Computation, 6h, Master ACSYON, Limoges.

8.2.2. *Supervision*

PhD in progress: Evangelos Anagnostopoulos, Geometric algorithms for massive data, LAMBDA Marie Skłodowska-Curie RISE Network, started in September 2016, supervised by Ioannis Emiris.

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: Apostolos Chalkis, Sampling in high-dimensional convex regions, started in June 2018, supervised by Ioannis Emiris.

PhD in progress: Emmanouil Christoforou, Geometric approximation algorithms for clustering, Bioinformatics scholarship, started in January 2018, supervised by Ioannis Emiris.

PhD in progress: Alvaro-Javier Fuentes-Suàrez, Skeleton-based modeling of smooth shapes. AR-CADES Marie Skłodowska-Curie ITN, started in October 2016, supervised by Evelyne Hubert.

PhD: Jouhayna Harmouch, Low rank structured matrix decomposition and applications. Cotutelle Univ. Liban, cosupervised by Houssam Khalil, Mustapha Jazar and Bernard Mourrain. Defended in December.

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 in progress: Evangelos Bartzos, Algebraic elimination and Distance graphs. ARCADES Marie Skłodowska-Curie ITN, started in June 2016, supervised by Ioannis Emiris.

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

PhD in progress: Ioannis Psarros, Dimensionality reduction and Geometric search, Greek scholarship foundation, started in Sep. 2015, supervised by Ioannis Emiris.

PhD in progress: Erick David Rodriguez Bazan, Symmetry preserving algebraic computation. CORDI Inria SAM, started in November 2017, supervised by Evelyne Hubert.

PhD in progress: Fatmanur Yildirim, Distances between points, rational Bézier curves and surfaces by means of matrix-based implicit representations. ARCADES Marie Skłodowska-Curie ITN, started in October 2016, supervised by Laurent Busé.

8.2.3. *Juries*

L. Busé was a member of the committee of the PhD of Rémi Bignalet-Cazalet entitled *Géométrie de la projectivisation des idéaux et applications aux problèmes de birationalité*, University Bourgogne Franche-Comté, Dijon, France, October 24th.

I. Emiris was a member of two 3-person supervisory committees of PhD students Anuj Sharma and Emmanouil Kamarianakis, who defended their theses in December 2018, at NK University of Athens, and University of Crete, Greece, respectively.

E. Hubert was a member of the PhD committee of Timothé Pecatte from Ecole Normale Supérieure de Lyon, section informatique : *Bornes Inférieures et Algorithmes de Reconstruction pour des Sommes de Puissances Affines*.

8.3. Popularization

8.3.1. *Interventions*

- Ioannis Emiris was an invited speaker at "Open Science Days", Athens, 29 November 2018, and at "Mathematics Education Forum" within the Greek Mathematical Society annual meeting, Athens, December 2018.

ATHENA Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. Member of Organizing Committees

- M. Clerc organized the "journées C@UCA" for Université Côte d'Azur in Fréjus, June 14-15, 2018.

8.1.2. Scientific Events Selection

8.1.2.1. Member of Conference Program Committees

- T. Papadopoulo is member of the Program Commitee of GRETSI 2019.

8.1.2.2. 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 (ICIP, ISBI, ICASSP, VISAPP).

8.1.3. Journal

8.1.3.1. Member of 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

8.1.3.2. 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 (IEEE access, Transactions on Pattern Analysis and Machine Intelligence, Frontiers in Neuroscience, Brain Topography, Transactions on Biomedical Engneering).

8.1.4. Invited Talks

- M. Clerc gave an invited talk at the ICM Colloquium, Paris, January 15, 2018.
- M. Clerc gave an invited talk at the ENS Data Science Colloquium, Paris, February 6, 2018.
- M. Clerc gave an invited talk at the SIAM Symposium on Imaging Sciences, Bologna, June 6, 2018.
- M. Clerc gave an invited talk at the Journées Scientifiques Inria, Bordeaux, June 27, 2018.
- M. Clerc gave an invited talk at the Colloque "Physique et Interrogations Fondamentales", Bibliothèque Nationale de France, Paris, Nov 10, 2018.
- M. Clerc gave an invited talk at the "Journées des Jeunes Mathématiciens et Jeunes Mathématiciennes", Orléans, Nov 29, 2018.

- R. Deriche gave an invited keynote speech at SPIE Medical Imaging,Houston, Texas United States (Feb. 12th, 2018).
- R. Deriche gave an invited keynote speech at EDITE ParisTech-Sorbonne Université, Paris (Dec. 10th, 2018).
- T. Papadopoulo gave an invited talk at "Inverse Problems: Modelling and Simulation", Malta (May, 2018) [20].

8.1.5. Leadership within the Scientific Community

- M. Clerc is the coordinator of the Inria Project-Lab BCI-LIFT.
- M. Clerc is on the board of the CORTICO association (Collectif pour la Recherche Transdisciplinaire sur les Interfaces Cerveau Ordinateur).
- R. Deriche is the P.I. of the ERC AdG COBCOM.

8.1.6. Scientific Expertise

- M. Clerc served Cordis-H2020 for FET-OPEN prosals evaluations.
- M. Clerc participated in an HCERES visiting commitee in November 2018 (CentraleSupélec).
- R. Deriche serves several international institutions in reviewing applications : ERC Grants, Swiss National Science Foundation, the Netherlands Organisation for Scientific Research (NWO).
- T. Papadopoulo served Cordis-H2020 for FET-OPEN prosals evaluations.

8.1.7. Research Administration

- M. Clerc was adjoint deputy director for Science of Inria Sophia Antipolis (until August 2018).
- M. Clerc was member of the Evaluation Committee of Inria (until August 2018).
- M. Clerc was member of the Commission Scientifique Interne of Inria (until August 2018).
- M. Clerc was vice-president of the CRCN Selection Committee in Inria Sophia Antipolis.
- M. Clerc was a member of the CRCN Selection Committee in Inria Grenoble.
- M. Clerc is member of the Scientific Council of Academy 4 of Université Côte d'Azur.
- M. Clerc is co-animator of a structuring program on Neurosciences at Université Côte d'Azur.
- 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 (http://www.olea-medical.com/).
- T. Papadopoulo represents Inria at the Administration Council of the CIU Santé (till July 2018).
- T. Papadopoulo is member of the Software Development Committee at Inria.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master: M. Clerc, Functional neuroimaging and data analysis, 36 ETD, MSc "Mod4NeuCog", Université Côte d'Azur, France.

Master: R. Deriche, Variational approaches and Geometrical Flows for Computational Brain Imaging, 36 ETD, M2 "Computational Biology and Biomedicine", Université Côte d'Azur, France.

Master: R. Deriche, Advanced Image Processing Techniques, 12 ETD, M1 International CBB & Ubinet, Université Côte d'Azur, France.

Master: T. Papadopoulo, *3D Computer Vision*, 12 ETD, M1 International Ubinet, Université Côte d'Azur, France.

Master: T. Papadopoulo, *Inverse problems for brain functional imaging*, 24 ETD, M2, Mathématiques, Vision et Apprentissage, ENS Cachan, France.

8.2.2. Supervision

PhD in progress: Thinhinane Megherbi, "HARDI & High Order Tensors", started Sept. 2011. 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 in progress: Kostiantyn Maksymenko, "Inverse problem in EEG/MEG/SSEG: towards a better consideration of anatomo-functional constraints", Université Côte d'Azur,, started Oct. 2016. Supervisors: Théodore Papadopoulo and Maureen Clerc.

PhD defended on Dec. 21st, 2018: Guillermo Gallardo Diez, "Connectivity-Based Brain Parcellation", started Nov. 2015, Université Côte d'Azur. Supervisors: D. Wassermann and R. Deriche

PhD defended on Dec. 11th, 2018: Nathalie Gayraud, "Structured Dictionary Learning", Université Côte d'Azur, started November 2015. Supervisor: 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 Papadopolo 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 Papadopolo and Samuel Deslauriers-Gauthier.

8.2.3. Juries

- M. Clerc participated as a reviewer in the HDR jury of Denis Schwartz at Sorbonne Université, Paris on November 7. 2018.

- M. Clerc participated as a reviewer in the PhD jury of Fardin Afdideh, Université Grenoble Alpes on October 12, 2018.

- M. Clerc participated as a reviewer in the PhD jury of Aldo Mora Sanchez at Sorbonne Université, Paris on November 19, 2018.

- M. Clerc participated in the PhD jury of Yousra Bekhti at Telecom ParisTech on March 22, 2018.

- M. Clerc participated in the PhD jury of Tom Dupré Latour at Telecom ParisTech on November 26, 2018.

- M. Clerc participated in the PhD jury of N. Gayraud at Université Côte d'Azur on December 11, 2018.

- R. Deriche participated as a reviewer in the HDR jury of G. Varoquaux at UPMC, Paris on May 23, 2018.

- R. Deriche participated in the HDR jury of D. Tschumperle at GREYC Ecole Nationale Supérieure d'Ingénieurs de Caen, Oct. 3, 2018.

- R. Deriche chaired the PhD jury of Lorenza Brusini at Università di Verona on April 19th, 2018.

- R. Deriche participated as a reviewer in the PhD jury of Chendi Wang at the University of British Columbia - Vancouver, CA on May 2018.

- R. Deriche participated in the PhD jury of G. Gallardo at Université Côte d'Azur on Dec. 21, 2018.

8.3. Popularization

8.3.1. Interventions

- M. Clerc participated in the Brain Awareness Week with a talk about Brain Computer Interfaces at CHU Nice Pasteur, March 16 2018.
- M. Clerc participated in the Brain Awareness Week with a talk about Music and the Brain at Villa Arson, Nice, March 17 2018.
- M. Clerc, T. Papadopoulo, F. Turi and R. Lacroix participated in the Fête de la Science with a BCI demo where the general public could test a P300 speller system.

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 is the Co-Chair of the next Dycops-CAB conference (CAB 2019 Florianópolis, Brazil, 23-26 April).

M. Chaves is organizing co-chair for the International Symposium on Molecular Logic and Computational Synthetic Biology (Santiago Chile, 17-18 December, 2018).

10.1.1.2. Member of the Organizing Committees

M. Chaves is part of the organizing committee for the Summer School on "Modélisation formelle des réseaux de régulation biologique" (Porquerolles, France, June 2019).

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.

M. Chaves is a member of the program committee of Journées ouvertes de biologie informatique et mathématiques (JOBIM 2018, Marseille, France, 3-6 June; JOBIM 2019, Nantes). She is in the program committee of Foundations of Systems Biology in Engineering (FOSBE 2019).

J.-L. Gouzé is a member of the program committee for the International Conference on Positive Systems (POSTA 2018, Hangzhou, China, 25-27 August).

10.1.2.2. Reviewer

All BIOCORE members have been reviewers for the major 2018 conferences in our field: CDC, ECC, IFAC World Congress,...

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, 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 PROMES Laboratory for solar ernergy (Odeillo) "Purple Sun-sharing photons between semi transparent PV panels and microalgae production" (July, 13rd, 2018).

M. Chaves and J. Roux gave a paired presentation on modeling heterogeneity in cell-death drug response at the group UCancer (a UCA structuring project) (December 2018).

M. Chaves gave a Colloquium at the Department of Mathematics at Universidade de Aveiro, Portugal (June 2018).

10.1.5. Other Selected Talks

M. Chaves gave a presentation on ANR project ICycle at the workshop ComplexDays, organized by Université Côte d'Azur (January 2018).

J.-L. Gouzé gave a talk at the SFBT meeting (St Flour, June 2018).

L. Chambon participated at the Workshop MOMI 2018 on the 26th and 27th of February, organised by Inria in Sophia-Antipolis about Mathematics in industry, where she presented a poster of her research. On the 18th and 19th of June, she presented a poster at the "Modelife Days" of the UCA Jedi Idex Core program "Modeling, physics and mathematics of living systems" in Nice.

10.1.6. Scientific Expertise

O. Bernard is a member of the scientific committee of the companies Inalve and BioEnTech.

J.-L. Gouzé was in several evaluation committees or juries: FWO, NWO, FNRS...

S. Touzeau evaluated a project for the "Centre d'excellence africain en Mathématiques, Informatique et Technologies de l'Information et de la Communication" (CEA-MITIC), Senegal.

10.1.7. 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 is a member of the CLHSCT of Inria Sophia Antipolis (local committee for the safety of working conditions).

M. Chaves is in the Pedagogical Committee 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. He is a member of the scientific committee of the doctoral school "Sciences de la Vie" at the University of Nice-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 metaprogramme SMaCH *Sustainable Management of Crop Health*, INRA (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: 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 : 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: 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

HdR : L. Mailleret. Modélisation et contrôle en dynamiques de populations. Applications en protection des plantes, 16 February 2018, Université Côte d'Azur.

PhD : S. Almeida. "Synchronization of biological oscillators: modeling, analysis and coupling of the mammalian cell cycle and circadian clock", 17 December 2018, Université Côte d'Azur. Supervisors: M. Chaves and F. Delaunay (Univ. Nice, iBV).

PhD : M. Caïa, "Characterization and modeling of a mixotrophic algae - bacteria ecosystem for waste recovery", 13 December 2018, Université Montpellier. Supervisors: J.-P. Steyer and O. Bernard.

PhD : C. Lopez-Zazueta. "Réduction dynamique de réseaux métaboliques par la théorie des perturbations singulières : application aux microalgues", 14 December 2018, Université Côte d'Azur. Supervisors O. Bernard and J.-L. Gouzé.

PhD : V. Burte. "Étude des stratégies de mouvement chez les parasitoïdes du genre Trichogramma : apports des techniques d'analyse d'images automatiques", 14 December 2018, Université Côte d'Azur. Supervisors V. Calcagno et L. Mailleret.

PhD in progress : M. Haond. "Causes et conséquences des fronts de colonisation poussés", since October 2015, Univ. Nice Sophia Antipolis. Supervisors: E. Vercken (UMR ISA), L. Mailleret and L. Roques (UR BioSP).

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 : L. Pereira. "Experimental and computational approaches to understanding the molecular origins of drug response heterogeneity, underlying resistance to cancer therapies", since October 2016, Université Côte d'Azur. Supervisors: M. Chaves and J. Roux (IRCAN, Nice).

PhD in progress: M. Gachelin, "Selection pressure to improve lipid productivity of microalgae", since March 2017, Sorbonne Université. 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, Université Côte d'Azur. Supervisor: 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 (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 (Valse, Inria Lille).

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: I. Tankam Chedjou, "Modeling, analysis and control of plantain plant-parasitic nematodes", University of Yaoundé 1, since December 2015. Supervisors: J.-J. Tewa, F. Grognard, L. Mailleret, S. Touzeau.

PhD in progress: Y. Fotso Fotso, "Modeling, analysis and control of coffee berry borers", University of Dschang, since January 2017. Supervisors: S. Bowong, B. Tsanou, F. Grognard, L. Mailleret, S. Touzeau.

10.2.3. Master thesis and internships

PFE: Adrien Boudin, "Controle optimal des ressources dans une cellule", EPU MAM, supervisors J.-L. Gouzé et JB. Caillau (McTao).

Engineer: Bruno Assis Pessi, "Modeling microalgal growth under a greenhouse", Ecole CentraleSupelec, supervisor O. Bernard.

M2: Jenna Balaguer, "Effect of background turbidity on microalgae growth", Sorbonne Université, supervisor O. Bernard.

M2: Jean-Baptiste Excoffier, "Modélisation in silico de médicaments, et personnalisation des traitements", Université Côte d'Azur, supervisors J.-L. Gouzé and F. Dayan (Exactcure).

M2: Pauline Clin, "Résistance systémique acquise, mélanges variétaux et épidémiologie évolutive des interactions plantes-pathogènes", Université de Rennes 1, supervisors F. Grognard and F. Hamelin (Agrocampus Ouest).

M1: David Davtian, "Modélisation multi-agent pour l'étude et l'optimisation des introductions biologiques", Université Côte d'Azur, supervisors L. Mailleret and F. Grognard.

M1: Thomas Brenière, "Physiologie de la plante attaqué par les nématodes: Modélisation et expérimentation", INSA Lyon, supervisors V. Baldazzi and C. Djian-Caporalino (ISA, INRA Sophia Antipolis).

Other: O. Bernard supervised a project involving 4 students from CentraleSupelec (first year of engineering school), 4 months, to design a system for detecting contamination in microalgae cultures.

10.2.4. Juries

V. Baldazzi and L.Mailleret participated in the thesis comitee of Marta Zaffaroni (INRA Avignon) in October 2018.

O. Bernard was reviewer for the PhD thesis of G. Jeanne "Optimization of bioprocess design: towards an intergated approach synthetic biology and process control". University Paris-Saclay (27 Sept. 2018).

M. Chaves was member of the jury for the PhD thesis of Sofia Almeida, December 2018.

J.-L. Gouzé and O. Bernard were in the jury of the PhD of Claudia Lopez Zazueta "Réduction dynamique de réseaux métaboliques par la théorie des perturbations singulières : application aux microalgues." Université Côte d'Azur, December 14, 2018.

J.-L. Gouzé was reviewer of the PhD of Hongjun Ji "Systèmes dynamiques coopératifs appliqués en biologie", Sorbonne Université, October 11, 2018.

S. Touzeau was the external examiner of Rebecca Bekker's MSc thesis in Applied Mathematics "Mathematical models of the epidemiological dynamics of soil-borne pathogens", University of Pretoria, South Africa, 2018.

S. Touzeau was a member of the selection committee MC 25–26 "Analyse des EDP pour la dynamique des populations", University of Bordeaux, France, 2018.

10.3. Popularization

10.3.1. Articles and contents

- A popularization paper has been published on the study of peach sugar metabolism [64].
- L. Mailleret was a co-author of the press kit "Les conquêtes de l'INRA pour le biocontrôle" [86].
- The activities related to microalgae have generated many articles in national newspapers (Le Monde, Nice Matin, ,...), and broadcasts on national TV (France 3). See, for instance, https://www.nicematin.com/vie-locale/ces-azureens-inventent-223249.

10.3.2. Interventions

- O. Bernard together with R. Lemée gave a general public conference on the topic "Les microalgues en Méditerranée: quels avenirs environnementaux, énergétiques, sanitaires et industriels?" (MA-MAC, Nice, 6 Apr 2018).
- L. Chambon and O. Bara participated in the open doors days of Inria Sophia-Antipolis on the 7th of October. L. Chambon presented a popularization poster about Biocore scientific methodologies to general public.
- L. Chambon represented Biocore, Inria in the national event "Fête de la Science" in Mouans-Sartoux and Juan-les-Pins (13th and 20th of October). She presented scientific popularization games and experiments to children and general public.
- L. Mailleret presented three Posters on biological control with predatory mites during the visit of the national press (AFP, France Inter, Le Parisien,...) at Institut Sophia Agrobiotech on the 30th of May 2018.

BIOVISION Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. General Chair, Scientific Chair,Member of the Organizing Committees

- Bruno Cessac has co-organized the conference Inspire New Insights on Complex Neural Dynamics, Cergy-Pontoise, France, June 2018 https://inspire2018parisseine.wordpress.com/
- Bruno Cessac has co-organized the scientific event 2nd structuring event UCA Cognitive systems, normality and pathology of the human brain, computational neuroscience http://univ-cotedazur.fr/events/deuxieme-rencontre-c@uca
- Selma Souihel and Evgenia Kartsaki participated to the organizing committee of "Le MOnde des Mathématiques Industrielles (MOMI 2018)", a two-day workshop on applied and industrial mathematics. The workshop took place on the 26th and 27th of February, 2018 at the Inria Sophia Antipolis-Mediteranée research center. It was supported by Inria and financed by the Société des Mathématiques Appliquées (SMAI) as a BOUge tes Maths (BOUM) project, by the Agence pour les Mathématiques en Interaction avec l'Entreprise et la Société (AMIES) and by the Labex User Centric Network @ Sophia within the context of Investissement d'Avenir (IA) projects – projets "Laboratoires d'excellence", and by the Université Côte d'Azur within the context of the "Joint, Excellent and Dynamic Initiative" (JEDI) projects. In total, 3 keynote speakers, 8 industrial speakers and 80 participants (researchers, PhDs , and engineers) attended MOMI 2018.
- Pierre Kornprobst was a Technical Program Committee (TPC) member for the 25th European Signal Processing Conference (EUSIPCO 2017).

9.1.2. Reviewer

Bruno Cessac was a reviewer for the conference ICMNS, International Conference on Mathematical Neuro-Science .

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Pierre Kornprobst has been associate editor for the Computer Vision and Image Understanding Journal (CVIU) since Jul 2016.

9.1.4. Invited Talks

- B. Cessac, D. Karvouniari, L. Gil, O. Marre, S. Picaud. Multi scale dynamics in retinal waves, in: Inspire New Insights on Complex Neural Dynamics, Cergy-Pontoise, France, June 2018.
- B. Cessac, Ion channels and properties of large neuronal networks: a computational study of re.nal waves during development, in: Symposium on Ion channels and Channelopathies - IPMC, Sophia Antipolis, France, November 2018.

9.1.5. Research Administration

- The PhD Seminars of Inria Sophia Antipolis - Méditerranée are 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 are current members of the organizing committee have been involved in the scheduling, communication and diffusion. These tasks include calls for presentations, calendar planning and promotion of each seminar. Finally, they are also involved in the organization of the MOMI 2018 conference.

- Bruno Cessac is a member of the scientific council of the Institut NeuroMod de "Modélisation en Neurosciences et Cognition".
- Pierre Kornprobst is an elected member of the Academic Board of UCA (since November 2015). The role of this council is to proceed with the appointment of selection committees and the recruitment of public servants. Also, it validates the global training offer of Nice area, is involved in the global policy of doctoral training, and awards research funding. The council meets one a month and each member also participate to the evaluation of research proposals submitted to UCA [JEDI] calls.
- Pierre Kornprobst has been a member of the Comité de Suivi Doctoral (CSD) since March 2017.

9.2. Teaching - Supervision - Juries

9.2.1. 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 D. Karvouniari and F. Lavigne), *Introduction to Modelling in Neuroscience*, 36 hours, Master Mod4NeuCog, Université Nice Sophia Antipolis, France.

9.2.2. Supervision

- PhD defended on March 15th, 2018. Theodora Karvouniari, "Retinal waves in the retina: theory and experiments". Started in October 2014. Defense scheduled in March 2018. Supervisor, B. Cessac.
- PhD in progress: 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.

9.2.3. Juries

- Bruno Cessac was member of the Comité de suivi de thèse of Matthieu Sarrazin (U. Paris Sorbonne).
- Pierre Kornprobst was reviewer of the PhD of Charles Hessel, entitled "The automatic decomposition of an image in base and detail: Application to contrast enhancement", from Université de Paris-Saclay, Ecole Normale Supérieure de Paris-Saclay, France.
- Pierre Kornprobst was reviewer of the HDR of David Tschumperlé, entitled "Champs tensoriels pour la modélisation géométrique locale et non-locale des images et leurs applications", from Université de Caen, France.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- E. Kartsaki and S. Souihel are participating to the organization of the Inria Sophia PhD seminars.

9.3.2. Interventions

- The Biovision team participated to the "fête de la science 2018".

CAMIN Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. General Chair, Scientific Chair

Christine Azevedo organized a special session "Application of FES for lower limbs movement assistance" at ICNR conference (Pisa, Italy) on October 2018.

9.1.2. Member of the Conference Program Committees

- David Guiraud was Co-editor of the theme 6 at IEEE EMBC conference
- Daniel Simon is member of the ICINCO conference program committee
- David Andreu was member of the ERTS2 conference program committee

9.1.3. Reviewer

- Christine Azevedo was reviewer for IEEE EMBC, IROS, ICNR conferences
- David Guiraud was reviewer for IEEE EMBC and IEEE NER
- François Bonnetblanc was reviewer for IEEE EMBC
- Daniel Simon was reviewer for the IFAC CAMS, IFAC ICINCO, ECC and IEEE CCTA conferences
- David Andreu was reviewer for the ERTS2 conference

9.1.4. Member of the Editorial Boards

- Christine Azevedo is member if ERCIM News' Editorial Board as Inria representant.
- David Guiraud is Associate Editor of Journal of Neural Engineering and Medical and Biological Engineering and Computing.

9.1.5. Reviewer - Reviewing Activities

- David Guiraud is reviewer of several journals among which IEEE TNSRE, IEEE ACCESS, IEEE TCST, JNE, J. Of Neuroscience Method, Computer in Biology and Medicine, Science Advances (AAAS)...
- Daniel Simon was reviewer for IEEE Control Systems Technology and Real Time Systems.
- David Andreu was reviewer for Journal of Neural Engineering.

9.1.6. Invited Talks

François Bonnetblanc: University of British Columbia and Peter Wall Institute of Advanced Studies. "Awake Brain Surgery: the naked brain", 4 octobre 2018.
François Bonnetblanc : Karolinska Institute (Programme TOR). Neurosurgery Department, "Awake Neurosurgery and electrophysiology"). 5-9 novembre 2018.
Christine Azevedo was invited to give a lecture at Inria Rennes center "Pédalage assisté par stimulation électrique de muscles paralysés.".

9.1.7. Leadership within the Scientific Community

Christine Azevedo is member of the board of directors of International Functional Electrical Stimulation Society (IFESS).

9.1.8. Scientific Expertise

David Guiraud was reviewer for the ERC program (Starting and Advanced) in 2018

Christine Azevedo was examiner for APHP Delegation Clinical research and Innovation call for proposals for detached positions.

9.1.9. Research Administration

Christine Azevedo is member of Inria Evaluation Committee (CE). She participated in the competitive examinations for junior researcher recruitment in Inria Lille Center (April 2018) and Inria Grenoble Center (May 2018). She was also in the examination committee of CHRC and DR0 promotions as well as detachments. Christine Azevedo is member of Inria Ethical Committee (COERLE).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Master SMH : David Guiraud, "Stimulation Electrique Fonctionnelle", 16h, M2, Université de Montpellier, France
- Master Neuroprothèses : Daniel Simon, "Control basics", 6.5h, M2, Université de Montpellier, France
- Master Neuroprothèses : Christine Azevedo, "Ethical considerations", 3h, M2, Université de Montpellier, France
- Master Neuroprothèses : François Bonnetblanc, "Motor Control", "Neuroplasticity", "Electrophysiology in Neurosurgery", 16h, M1, Université de Montpellier, France
- Master Mechanics and its Interactions : François Bonnetblanc, "Motor Control", 4,5h, M2, Université de Montpellier, Polytech, France
- DU Functional electrical stimulation : François Bonnetblanc, "Motor Control", "Neuroplasticity", "Electrophysiology in Neurosurgery", 12h, Université de Montpellier, France
- DU Functional electrical stimulation : David Andreu, "Neuroprosthesis: from functions to active medical implanted devices" , 6h, Université de Montpellier, France
- DU Functional electrical stimulation : David Guiraud, "Electrophysiology", "Biophysics", "Neuroprothesis", 6,5h, Université de Montpellier, France
- DU Functional electrical stimulation : Christine Azevedo, "Electrophysiology", "Functional Electrical Stimulation", "Clinical Applications", 7h, Université de Montpellier, France
- DU Functional electrical stimulation : Charles Fattal, "Functional Electrical Stimulation and Clinical Applications", 5h, Université de Montpellier, France

François Bonnetblanc is responsible for a DU about "Functional Electrical Stimulation"
D. Andreu teaches software engineering, real time OS, discrete event systems, control architectures, networks, neuro-prosthesis, 200 h, master and engineers degrees, Polytech Montpellier, France.

9.2.2. Supervision

- PhD: Benoît Sijobert, Assistive Control of Motion in SensoriMotor Impairments based on Functional Electrical Stimulation, Montpellier University, September 28th 2018, Christine Azevedo, David Andreu and Charles Fattal.
- PhD: Ibrahim Merzoug, Validation formelle des systèmes numériques critiques : génération d'espace d'états de réseaux de Petri exécutés en synchrone, Montpellier University, January 15th 2018, David Andreu and Karen Godary.
- PhD in progress: Antony Boyer, Neuroplasticity and recovery in remote (sub)cortical structures following wide-awake surgery of infiltrative low-grade gliomas: investigation of fMRI and EEG signals, 01/09/2016, François Bonnetblanc and Sofiane Ramdani.
- PhD in progress: Maxence Blond, Commande et modélisation d'un véhicule sous-marin, 18/01/2016, Daniel Simon, Vincent Creuze (LIRMM) and Ahmed Chemori (LIRMM).

- PhD in progress: Victor Vagne, "Couplage de la Spectroscopie en proche infrarouge et de la stimulation Transcrânienne (NIRS-tDCS) à courant continu dans l'Evaluation diagnostique de l'ischémie cérébrale lors d'un AVC", Oct. 2016, M. Hayashibe, D. Guiraud, Vincent Costalat (CHU Montpellier) and Emmanuelle Le Bars (CHU Montpellier)

- PhD in progress: XinYue Lu, Respiratory detection and monitoring Since March 2017, C. Azevedo Coste, T Similowski (Groupe Hospitalier Pitié-Salpêtrière), S Renaux (NEURORESP)

- PhD in progress (co-financing UM / Occitanie region): Vincent Iampietro, Contribution des méthodes formelles à la fiabilité des systèmes numériques complexes critiques : application aux dispositifs médicaux implantables innovants, since october 2018, D. Andreu, D. Delahaye (LIRMM).

9.2.3. *Juries*

Christine Azevedo was reviewer for the PhD thesis of Solenne Page (ISIR, UPMC University, Paris, France) "Control of a robotized walker based on postural characterization and application to obstacle avoidance." (May 2018).

Christine Azevedo was examiner in the defense committee of Mathilde Couraud (Bordeaux University, France) "Study of the sensori-motor control in a simplified artificial context with the aim to improve the control of myoelectric prostheses." (December 2018).

Christine Azevedo was examiner in the defense committee of Firas Kaddachi (Montpellier University, France) "Technological approach of early and non intrusive of health modification to better adapt services to elderly persons." (December 2018).

David Andreu was reviewer of the PhD thesis of T. Sotiropoulos (LAAS, Univ. Toulouse 3, France), "Test aléatoire de la navigation de robots dans des mondes virtuels." (May 2018).

9.3. Popularization

9.3.1. *Education*

Christine Azevedo Coste is mentor (2018-2019) for one Savanturiers project with Saussan school (CM1/CM2 level) https://les-savanturiers.cri-paris.org/

Christine Azevedo organized initiation sessions to informatics using Thymio robot at École Calendreta La Cardonilha (Mèze, France) in CP/CE1 level, 3 sessions of 2 hours (April 2018) .

Christine Azevedo organized initiation sessions to informatics using Thymio robot at École Valfalis (Montbazin, France) in CM1/CM2 level, 4 sessions of 2 hours (May-June 2018) .

As a COERLE member Christine Azevedo Coste was involved in one session on Ethics for phd students in Inria IRISA center (Rennes, france) (November 2018).

9.3.2. *Interventions*

- François Bonnetblanc : Pint of Science 16 mai 2018, François Bonnetblanc, Montpellier

CASTOR Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

- IPL FRATRES Workshop 2018. Alsace, November 21-23 (https://team.inria.fr/ipl-fratres/2018-ipl-meetings-ipl-workshop-alsace/)
- Final Summary meeting, Inria Paris, November 19 (https://team.inria.fr/ipl-fratres/final-summary-meeting/)

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- C. Boulbe is layout editor of the free journal SMAI-Journal of Computational Mathematics.
- J. Blum is member of
    - the editorial board of the Journal of Scientific Computing (JSC),
    - the scientific committee of the collection "Mathématiques et Statistiques" of the ISTE publications,
    - editor in chief of the ISTE Open Science journal: "Mathématiques appliquées et stochastiques".
- F. Rapetti is member of the editorial board of the Advances in Computational Mathematics (ACOM) journal by Springer

9.1.2.2. Reviewer - Reviewing Activities

- Hervé Guillard has been reviewer for the Journal of Computational physics, Computers and Fluids and International Journal for Numerical methods in Fluids.

9.1.3. Invited Talks

- Hervé Guillard, "Low Mach and multiphase flows", Workshop on numerical and physical modeling in multiphase flows: a cross-fertilisation approach, Paris, February 1-2, 2018, https://workshopmultiphase.wixsite.com/mpf2018
- Hervé Guillard, "Tokamesh : A software for mesh generation in Tokamaks", Renewable Energy meets High Performance Computing: Final Conference of the Energy-Oriented Centre of Excellence, Nicosia, Cyprus, September 17-18, 2018, https://www.eocoe.eu/events/final-eocoe-conference-cyprus
- Jacques Blum, "Algorithmes de contrôle optimal pour l'identification de l'équilibre du plasma et pour l'optimisation de scénarios dans un Tokamak", Marseille, November 29, 2018, https://plasmas2018.sciencesconf.org/resource/page/id/3

9.1.4. Leadership within the Scientific Community

- H. Guillard is coordinator of the topic "Turbulence and transport of edge plasma" within the Fédération FR-FCM

9.1.5. Scientific Expertise

- H. Guillard has acted as scientific expert for the FRS-FNRS (Fonds de la Recherche Scientifique - FNRS Fédération Wallonie-Bruxelles) and PRACE (Partnership for Advanced Computing in Europe).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Ecole d'ingénieur: D. Auroux, Optimisation, 66h, M1, Polytech Nice, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur: D. Auroux, Méthodes numériques, 36h, M2, Polytech Nice Sophia, Université de Nice Sophia Antipolis, France

Ecole d'ingenieur: D. Auroux, Projet, 35h, L3, Polytech Nice Sophia Antipolis, France

Master: J. Blum, Optimisation, 36h, M1, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur: C. Boulbe, Analyse Numérique, 71.5h, L3, Polytech Nice Sophia Antipolis, France

Ecole d'ingenieur: C. Boulbe, Projet, 35h, L3, Polytech Nice Sophia Antipolis, France

Licence: S. Minjeaud, module Eléments de calcul différentiel, 18 h, L3, Université de Nice Sophia Antipolis, France.

Master: S. Minjeaud, module Méthodes numériques en EDP, 62 h, M1, Université de Nice Sophia Antipolis, France.

Licence: S. Minjeaud, module Compléments de calcul différentiel, 20 h, L3, Université de Nice Sophia Antipolis, France.

Master: B. Nkonga, Analyse Numérique, 40h, M1, Université de 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

Licence: A. Sangam, Analyse, 40h, L1, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Analyse, 70h, L2, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Analyse Numérique, 86h, L3, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Projet tuteuré en laboratoire, 15h, L3 Physique, Université Nice Sophia Antipolis, France

Master: A. Sangam, Introduction to Finite Elements, 25h, M1, Université Nice Sophia Antipolis, France

9.2.2. Supervision

- PhD : Julie Llobel, "Schémas Volumes Finis à mailles décalées pour la dynamique des gaz", Université Cote d'Azur, Thierry Goudon et Sebastian Minjeaud
- PhD in progress : Ali Elarif, "Simulation numérique des instabilités magnétohydrodynamique dans les Tokamaks", since October 2017, Hervé Guillard
- PhD in progress: Xiao Song, "Model-based control-oriented scenario construction in tokamaks", since October 2016, Blaise Faugeras and Holger Heumann
- PhD in progress: Ashish Bhole, Numerical improvements and validations of the stabilized full MHD with applications to tokamaks, October 2017, Boniface Nkonga

9.2.3. Juries

- Hervé Guillard was referee in the HDR jury of Jean-Philippe BRAEUNIG, October 19, 2018, "Contributions à l'étude de schémas numériques de type Volumes Finis et de leurs applications pratiques".
- F. Rapetti was examinator in the jury of Matteo Valentinuzzi PhD defense at CEA in Cadarache on December, the 17th, 2018, "Numerical modelling of power flux densities on tokamak plasma facing components by using advanced coupling techniques for kinetic and fluid codes"

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

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

- David Coudert :

  RESCOM'18 : school of the *pôle ResCom of GDR ASR of CNRS* on "Apprentissage et fouille de données dans les réseaux", Porquerolles, France, June 18-22, 2018. This edition was organized in collaboration with GDR MADICS.

- Frédéric Havet :

  School on Graph Theory (SGT 2018), Séve, France, June 11-15 2018.

  Journées Combinatoire et Algorithmes du Littoral Méditerranéen (JCALM).

- Nicolas Nisse

  GRASTA'18 : 9th workshop on GRAph Searching, Theory & Applications, Berlin, Germany, 24-27 September 2018.

9.1.2. Scientific Events Selection

9.1.2.1. Chair of Conference Program Committees

- Christelle Caillouet :

  Program Committee Chair of AlgoTel'18 (20e Rencontres Francophones sur les Aspects Algorithmiques des Télécommunications): conférence of the *pôle ResCom of GDR ASR of CNRS* Roscoff, France, May 29-June 1, 2018.

9.1.2.2. Member of the Conference Program Committees

- David Coudert :

  ONDM'18: 22nd Conference on Optical Network Design and Management, Dublin, Ireland, May 14-17, 2018.

  IEEE ICC'18 : IEEE International Conference on Communications, Kansas City, MO, USA, May 20-24, 2018.

  SEA'18: 17th International Symposium on Experimental Algorithms, L'Aquila, Italy, June 27-29, 2018.

  IPEC'18: 13th International Symposium on Parameterized and Exact Computation, Helsinki, Finland, August 20–24, 2018.

  IEEE Globecom'18: IEEE Global Communications Conference, Abu Dhabi, UAE, December 9-13, 2018.

- Frédéric Havet :

  10th International Colloquium on Graph Theory (ICGT 2018), Lyon, France, July 9-13, 2018.

  Journées Graphes et Algorithmes (JGA 2018), Grenoble, France, 14-16 November, 2018.

- Nicolas Nisse

  SEA'18: 17th int. Symposium on Experimental Algorithms, L'Aquila, Italy, 27-29 June 2018.

CoRes'18: 3rd conférence francophone centrée les réseaux et protocoles de communicatio. Roscoff, France, 29 May- 1st June 2018

9.1.3. Journal

9.1.3.1. 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.

David Coudert

Discrete Applied Mathematics (Elsevier); Networks (Wiley).

Frédéric Giroire

Journal of Interconnection Networks (World Scientific).

Frédéric Havet

Discrete Mathematics and Theoretical Computer Science.

Bruce Reed

Journal of Graph Theory, Electronic Journal of Combinatorics.

9.1.3.2. Reviewer - Reviewing Activities

Members of COATI have reviewed numerous manuscripts submitted to international journals, including:

ACM Journal of Experimental Algorithmics, Ad Hoc Networks, Ars Combinatorica, Computer Networks (COMNET) Discrete Applied Mathematics (DAM), Discrete Mathematics, Discrete Mathematics and Theoretical Computer Science (DMTCS), European Journal of Combinatorics, IEEE/OSA Journal of Lightwave Technology (JLT), IEEE/ACM Transactions on Networking (ToN), IEEE Transactions on Parallel and Distributed Systems (TPDS), Journal of Computer and System Sciences (JCSS), Theoretical Computer Science (TCS) Theory of Computing Systems (TOCS), Utilitas Mathematica.

9.1.4. Invited Talks

- Julien Bensmail

  Sequential Metric Dimension (in trees). Graph Theory 2018 (GT'18), Nyborg, Denmark. August 2018.

  Augmenting matchings in trees, via bounded-length augmentations. 3rd International Symposium on the Frontier of Graph Theory, Qinghai Normal University, Xining, China. April 2018.

  Sequential Metric Dimension (in trees). Seminarium Matematyka Dyskretna, AGH university, Kraków, Poland. November 2018.

  A Decompositional Approach to the 1-2-3 Conjecture. Seminar of the Department of Applied Mathematics, Northwestern Polytechnical University, Xi'an, China. May 2018.

  On partitioning graphs into connected subgraphs. Seminar of the School of Mathematical Sciences, Anhui University, Hefei, China. May 2018.

- Christelle Caillouet

  Optimization of mobile sensor coverage with UAVs. Workshop "L'Internet des Objets Industriels" (IIoT) of GDR RSD / ResCom and GDR MACS, Strasbourg, France, July 3, 2018.

- Frédéric Giroire

Optimization of Network Infrastructures. Seminar of ETIS, University Cergy-Pontoise, France. November 2018.

- Frédéric Havet :

  Bispindles in strongly connected digraphs with large chromatic number. Graph Theory Meeting (GT 2018), Nyborg, Denmark, August 29 - September 1, 2018.

  Trees in tournaments. Journées Combinatoire Graphes et Algorithmes, Lyon, December 10-11, 2018.

- Nicolas Nisse

  When treewidth and treelength are equivalent: Seminar Xidian University, Xi'an, China, September 2018.

- Stéphane Pérennes, Luc Hogie, Michel Syska

  Parallel & Distributed Graph algorithms for large graphs, practical challenges: Atelier de programmation GRAMINEES in ANF APSEM2018 (Apprentissage et sémantique). November 2018.

9.1.5. Leadership within the Scientific Community

David Coudert

Member of the steering committee of *Pôle ResCom du GDR RSD du CNRS* since 2005, and co-chair since June 2017.

Frédéric Giroire

Member of the steering committee of *GT Energy of the GDR RSD du CNRS*.

Frédéric Havet :

Member of the steering committee of *GT Graphes of the GDR IM of CNRS*.

9.1.6. Scientific Expertise

- Jean-Claude Bermond

  Expert for DRTT-MESR Crédit impôt recherche (CIR et agréments).

- Frédéric Havet :

  Expert for ANR and NSERC (Canada)

- Nicolas Nisse

  Expert for ANR

  Expert for ODP (OPUS, Poland) 2018

  Expert for Millennium Science Initiative (Programme de financement chilien) (2018).

  Expert for ESF (European Science Foundation) 2018.

9.1.7. Research Administration

- Jean-Claude Bermond

  Responsible fo the cooperation between Inria and Greece (obtention of join grants and of 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;

  Member of "Comité de Sélection" MCF 0403, Grenoble INP, 2018.

- David Coudert :

  Nominated member for Inria at the doctoral school STIC since September 2017;

Member of the "Comité de Suivi Doctoral" of Inria (since 2009);

Member of the scientific council of Academy RISE (Networks, Information, Digital Society) of UCA[JEDI] till January 2018;

Nominated member for Inria at the steering committee of Academy RISE (Networks, Information, Digital Society) of UCA[JEDI] and EUR DS4H since Fébruary 2018;

Member of "Comité de Sélection" 4109 - 0074 - PR 27 STS, Université d'Avignon et des Pays de Vaucluse, 2018.

Member of "Comité de Sélection" 27 Pr 519, Université Nice - Sophia Antipolis, 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.

- Nicolas Nisse

  Elected member of Comité de Centre, Inria Sophia Antipolis since 2016

  Membre du CS Académie 1 UCA

- Michel Syska

  Elected member of CPRH (Comité Permanent de Ressources Humaines) University of Nice-Sophia Antipolis;

9.2. Teaching - Supervision - Juries

9.2.1. Teaching responsibilities

- Julien Bensmail

  In charge of the internships of first year students of QLIO département of IUT Nice Côte d'Azur.

- Joanna Moulierac

  "Directrice d'études" for the 1st-year students du 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).

9.2.2. Teaching

- Julien Bensmail

  Sécurité des systèmes d'information, 36h ETD, Level LP, IUT Nice Côte d'Azur, UNS;

  Recherche opérationnelle, 82h ETD, Level L2, IUT Nice Côte d'Azur, UNS;

  Systèmes de gestion de bases de données, 86h ETD, Level L2, IUT Nice Côte d'Azur, UNS.

- Christelle Caillouet

  Programmation Orientée Objet, 96h ETD, Level L1, IUT Nice Côte d'Azur, UNS;

- David Coudert

  Algorithms for Telecoms, 32h ETD, stream UbiNet of Master 2 IFI and Master RIF, UNS.

- Frédéric Giroire

  Algorithmics of Telecommunications, 18h ETD, stream UbiNet of Master 2 IFI, UNS;

  Data Mining for Networks, 18h ETD, stream UbiNet of Master 2 IFI, UNS;

  Introduction to probability and statistics, 15h ETD, International Master 1, UNS.

- Joanna Moulierac

    Introduction à l'algorithmique, 30h ETD, Level L1, IUT Nice Côte d'Azur, UNS;

    Introduction aux Réseaux, 60h ETD, Level L1, IUT Nice Côte d'Azur, UNS;

    Programmation répartie, 40h ETD, Level L1, IUT Nice Côte d'Azur, UNS.

    Réseaux avancés, 60h ETD, Level L2, IUT Nice Côte d'Azur, UNS;

    Compléments d'algorithmique, 30h ETD, Level L2, IUT Nice Côte d'Azur, UNS.

- Nicolas Nisse

    Graph Algorithms and Combinatorial Optimization, 18 ETD, Master 2, parcours Ubinet master IFI, UNS;

    Informatique théorique, 24 ETD, MPSI, classe préparatoire, CIV, Valbonne;

- Stéphane Pérennes

    Java pour le Calcul Ditribué et Concurrent, 60 h ETD Level : Master MIAGE Univ. Nice Côte d'Azur, UNS;

- Michel Syska

    Operating Systems: Advanced Programming, 28h ETD, Level L2, IUT Nice Côte d'Azur, UNS;

    Data Structures and Algorithms, 40h ETD, Level L2, IUT Nice Côte d'Azur, UNS;

    Algorithmics, 52h ETD, Level L2, IUT Nice Côte d'Azur, UNS;

    Distributed Programming, 58h ETD, Level L2, IUT Nice Côte d'Azur, UNS;

9.2.3. Supervision

9.2.3.1. PhD thesis

PhD: William Lochet, *Substructures in digraphs* [2], Université Côte d'Azur, July 19, 2018. Co-supervisors: Frédéric Havet and Stéphan Thomassé (ÉNS Lyon).

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: Brieuc Berruet, *Application des techniques de Machine Learning à la géolocalisation des objets connectés dans le contexte de la future 5G*, doctorale school SPIM, Université de Belfort Franche Comté, since November 2016. Supervisor: Alexandre Caminada and Oumaya Baala (Orange).

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.

PhD in progress: Adrien Gausseran, *Optimization Algorithms for Network Slicing for 5G*, since October 2018. Supervisors: Joanna Moulierac and Nicolas Nisse.

PhD in progress: Mehdi Katranji, *Utilisation des méthodes de Machine Learning pour apprendre les modèles de mobilité humaine selon leurs attibuts socio-démographiques et géographiques*, doctorale school SPIM, Université de Belfort Franche Comté, since September 2016. Supervisor: Alexandre Caminada and Fouad Hadjselem (Orange).

PhD in progress: Fionn McInerney, *Combinatorial Games in Graphs*, since October 2016. Supervisor: Nicolas Nisse.

PhD in progress: Andrea Tomassilli, *Diffusion of information on large dynamic graphs*, since October 2016. Supervisors: Stéphane Pérennes and Frédéric Giroire.

PhD in progress: Thibaud Trolliet, *Exploring Trust on Twitter*, since October 2017. Co-supervisors: Arnaud Legout (DIANA) and Frédéric Giroire.

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).

9.2.3.2. Internships

- Eleni Batziou

    Date: from November 2017 until May 2018

    Institution: Master 2, National Technical University of Athens (Greece)

    Supervisors: David Coudert and Nicolas Nisse

    Subject: Enhancing urban mobility with shared on-demand services

- Florent Cabret

    Date: from April 2018 until June 2018

    Institution: DUT 2, IUT, Université Nice Sophia Antipolis

    Supervisors: Luc Hogie and Michel Syska

    Subject: Evaluation of Jmaxgraph, a distributed computing framework on large graphs

- Théo Frasquet

    Date: from July 2018 until August 2018

    Institution: SI4, Polytech'Nice, France

    Supervisors: David Coudert

    Subject: Decomposing a digraph into k-strongly connected components

- Adrien Gausseran

    Date: from March 2018 until september 2018

    Institution: Master 2 RIF, Université Nice Sophia Antipolis

    Supervisors: Frédéric Giroire and Joanna Moulierac

    Subject: Optimization Algorithms for Network Slicing for 5G

- Thibault Hilaire

    Date: from June-July 2018

    Institution: L3, ENS Saclay

    Supervisor: Nicolas Nisse

    Subject: Polynomial algorithm for connected graph searching.

- Allen Passos Ibiapina

    Date: from October 15 until December 14 2018

    Institution: Master 2, UFC Fortaleza, Brazil

    Supervisor: Frédéric Havet

    Subject: Constrained ear decompositions in graphs and digraphs.

- Badr Jouhar

    Date: from March 2018 until August 2018

    Institution: stream UbiNet of Master 2 IFI

    Supervisors: Frédéric Giroire and Andrea Tomassilli

    Subject: Joint optimization of network and data centers

- Thi-Viet-Ha Nguyen

    Date: from January 2018 until June 2018

    Institution: Master 2, ENS Lyon.

Supervisors: Frédéric Havet, Dorian Mazauric (ABS) and Rémi Watrigant (ENS Lyon)

Subject: Overlaying a hypergraph by graph families with bonded maximum degree.

- Meghana M. Reddy

    Date: from May 2018 until August 2018

    Institution: Master at IIIT-Bangalore, India

    Supervisors: David Coudert

    Subject: implementation of a linear time algorithms for decomposing a graph into 3-connected components in Sagemath. In the context of the Google Summer of Code (GSoC).

- Alexandre Simon

    Date: from June-July 2018

    Institution: L3, INSA Lyon

    Supervisor: Nicolas Nisse

    Subject: Treelength des graphes planaires.

- Sai Harsh Tondomker

    Date: from May 2018 until August 2018

    Institution: Master at IIIT-Hyderabad, India

    Supervisors: David Coudert

    Subject: implementation of algorithms for decomposing a graph into 3-connected components and organizing these components as a SPQR-tree in Sagemath. In the context of the Google Summer of Code (GSoC).

- Xuchun Zhang

    Date: from July 2018 until September 2018

    Institution: Master 1 MAM, Université de Nice Sophia Antipolis

    Supervisors: Jean-Baptiste Caillau, Enzo Giusti (Oui!Greens startup), Dorian Mazauric and Joanna Moulierac

    Subject: Optimal Assignment Problem for Oui!Greens

- Yin Zhuochao

    Date: from March 2018 until August 2018

    Institution: stream UbiNet of Master 2 IFI, UNS

    Supervisors: David Coudert and Nicolas Nisse

    Subject: On the pickup-and-delivery problem with time window

- Mykhailo Zima

    Date: from March 2018 until August 2018

    Institution: stream UbiNet of Master 2 IFI, UNS

    Supervisors: David Coudert and Nicolas Nisse

    Subject: Routing in multimodal networks with bicycles

9.2.4. Juries

- Jean-Claude Bermond :

    Member of the HDR jury of Ignasi Sau Valls, LIRMM, Montpellier, June 25 2018;

    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 the PhD jury of Alassanne Samba, IMT Atlantique, October 29, 2018;

- David Coudert :

  > President of the PhD jury of Jianding Guo, Université de Technologie de Belfort-Montbéliard, June 6, 2018;

  > President of the PhD jury of Mohammed Amine Ait Ouahmed, Université d'Avignon et des Pays de Vaucluse, October 15, 2018;

  > Referee and member of HDR committee of Fen Zhou, Université d'Avignon et des Pays de Vaucluse, September 28, 2018;

  > External referee in the PhD thesis monitoring committee of Karyna Gogunska, Université Côte d'Azur, March 19, 2018;

- Frédéric Giroire :

  > Invited member of the PhD jury of Marwa Dammak, ENSEA, Cergy-Pontoise, November 20, 2018;

- Frédéric Havet :

  > Referee and member of PhD committee of Antoine Dailly, Université Lyon 1, September 2018.

  > Referee and member of PhD committee of Tien-Nam Le, ENS Lyon, November 2018.

  > Member of PhD committee of Leo Planche, Université Paris Descartes, November 2018.

  > Referee and member of HDR committee of Laurent Beaudou, Université Clermont-Auvergne, December 2018.

  > Referee and member of PhD committee of Tilde Nielsen, Southern Denmark University, Odense, Denmark, December 2018.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- Frédéric Havet :

  > Vice-president and member of the scientific committee of the association Institut Esope 21 (http://www.esope21.eu).

- Nicolas Nisse:

  > Membre de Mastic (Médiation et Animation scientifiques Inria Sophia Antipolis - Méditerranée).

9.3.2. Education

- Frédéric Havet, Joanna Moulierac and Nicolas Nisse : Participation to Galejade projet.

  > Design of pedagogical resources introducing graphs and algorithms to primary school students.

  > Training of primary school teachers, ESPE April 9-10 2018.

9.3.3. Interventions

- Fête de la Science (Frédéric Havet, Nicolas Nisse, Fionn Mc Inerney, Ali Al Zoobi)

  > Journée portes ouvertes, Inria Sophia Antipolis, Sunday October 7, 2018.

  > Palais des Congrès de Juan-Les-Pins, October 20-21, 2018.

  > Collège de Vinon-sur-Verdon (83), October 9-12, 2018.

- Frédéric Havet, Joanna Moulierac, and Nicolas Nisse

Participation to the supervision of the internships of 12 pupils of 3eme, December 17-21, 2018.

- Frédéric Havet

    L'élégance des Mathématiques. Conference at Lycée Janetti, St Maximin, February 16, 2018. Audience: 3 classes (1e S and ES).

    La magie des graphes et du binaire. Conference at collège Alphonse Daudet, Nice, April 17, 2018. Audience: 2 classes of 4e and 1 of 6e.

    L'élégance des mathématiques. General audience conference, Rians, Var, France, April 28, 2018.

- Nicolas Nisse

    Training and awareness of school teachers (Cycle 2, CP-CE2) to scientific mediation. Le Cannet, November 21 and Mandelieu, November 28, 2018.

    Training and awareness of future teachers to scientific mediation, Ecole Supérieure du Professorat et de l'Education (ESPE, ex IUFM) of Académie de Nice. March 19-20 and April 9-10, 2018.

    Liens entre médiation numérique et recherche, Maison méditerranéenne des Sciences de l'homme (MMSH), Aix en Provence, March 14, 2018.

    Mediation for the Master en science de l'éducation, Nice, October 18, 2018.

- Fionn Mc Inerney :

    Presentation at Collège Victor Hugo, Nevers, France, March 23, 2018.

    Participation in the day "*L'informatique, c'est pas génétique, filles ou garçons, les clics sont identiques!*", Lycée Raoul Follereau, Nevers, France, March 22, 2018.

    Presentation at Ecole Primaire Romain Rolland, Varennes-Vauzelles, France, March 21, 2018.

    Supervised internship of a school girl in 2nd, Inria Sophia-Antipolis - Méditerranée, France, June 18-22, 2018.

- Michel Syska :

    Organisation and supervision of the code competition "*La nuit de l'info*", December 6-7, 2018.

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

10. Dissemination

10.1. Promoting Scientific Activities

We do not keep track of such activities.

10.1.1. Journal

10.1.1.1. Member of the Editorial Boards

T. Goudon is the founding editor and co-Editor in chief of SMAI Journal of Computational Mathematics.

10.1.2. Scientific Expertise

Thierry Goudon is member of the scientific board of CIRM and of FSMP.

10.1.3. Research Administration

- Roland Masson is the head of the team PDE and Numerical Analysis of the laboratory J.A. Dieudonné.
- Roland Masson is a member of the scientific committee of CERFACS.
- Roland Masson is scientific advisor at the scientific direction of Total.
- Thierry Goudon is member of the Evaluation Committee of Inria.
- Thierry Goudon is Scientific Officer at the French Ministry of Education and Research.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Members of the team are faculties of Université Côte d'Azur and they teach in all degrees of the University.

Florent Berthelin, Master 2 Mathématiques fondamentales, Université Côte d'Azur.

Florent Berthelin, Chair of the Master 2 Mathématiques fondamentales, Université Côte d'Azur.

Florent Berthelin, Analysis, L2, Université Nice Sophia Antipolis, 60h.

Thierry Goudon is President of the national competition to hire teachers (agregation de mathematiques).

Stella Krell, Linear Algebra, Master 1 enseignement, ESPE Nice, 23h.

Stella Krell, Didactics of mathematics, Master 1 EEF, Université Nice Sophia Antipolis, 43h.

Stella Krell, Theses and placement supervision, Master 2 EEF, Université Nice Sophia Antipolis, 12h.

Stella Krell, Preparation to mathematics agrégation interne, Université Nice Sophia Antipolis, 18h.

Stella Krell, Intervention, Master 2 enseignement, Université Nice Sophia Antipolis, 3h.

Stéphane Junca, Hyperbolic PDEs and mechanics, Master 2 MPA, Université Nice Sophia Antipolis, 36h.

Roland Masson, Numerical methods for PDEs, Master 2 MPA, Université Nice Sophia Antipolis, 36h.

Laurent Monasse, Introduction to dynamical systems, Ecole des Ponts ParisTech, 10h.

Laurent Monasse, Numerical analysis, L3, Université Nice Sophia Antipolis, 40h.

10.2.2. Supervision

PhD: Julie Llobell, Numerical schemes on staggered grids for conservation laws, Univ Nice Sophia Antipolis, 24 October 2018, Thierry Goudon and Sebastian Minjeaud

PhD: Laurence Beaude, Discretization of high energy geothermal systems in faulted porous media, Univ Nice Sophia Antipolis, 10 December 2018, Roland Masson, Konstantin Brenner, Simon Lopez and Farid Smai

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: Giulia Lissonni, DDFV methods and domain decomposition: applications in fluid mechanics, 01 September 2016, Stella Krell and Thierry Goudon.

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.

10.2.3. Juries

- Roland Masson:
  - Referee of the PhD of Florent Chave, 12/11/2018, Montpellier, "Méthodes Hybrides d'Ordre Elevé pour les problèmes d'interface".
  - Referee of the PhD of El Houssaine Quenjel, 15/12/2018, Meknes, Maroc "Volumes finis/Eléments finis pour des écoulements diphasiques compressibles en milieux poreux hétérogènes et anisotropes".
  - Referee of the PhD of Thibaut Lunet, 09/01/2018, Toulouse, "Stratégies de parallélisation espace-temps pour la simulation numérique des écoulements turbulents".

DATASHAPE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of Organizing Committees

- F. Chazal co-organised the Tutorial "Machine Learning on Evolutionary Computation" at the IEEE World Congress on Computational Intelligence (WCCI), Rio de Janeiro, July 2018.
- J-D. Boissonnat was a member of the organization committee of the International Conference on Curves and Surfaces, Arcachon, July 2018.
- S. Oudot organized the mini-symposium on topological data analysis and learning at the International Conference on Curves and Surfaces, Arcachon, July 2018.

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- S. Oudot was a PC member of the International Symposium on Computational Geometry (SoCG), Budapest, Hungary, June 2018.
- David Cohen-Steiner was a PC member of the Symposium on Geometry Processing (SGP), Paris, France, July 2018, and of Shape Modeling International (SMI), Lisbon, Portugal, June 2018.

10.1.3. Journal

10.1.3.1. 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)*.

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

10.1.4. Invited Talks

Frédéric Chazal, Abel Symposium, Geiranger, Norway, June 2018.

Frédéric Chazal, Colloquium de Mathématiques, Math Dept. Amiens, October 2018.

Frédéric Chazal, AI Research Center at National Cheng-Kung University, Taiwan, May 2018.

Frédéric Chazal, National Center for High-performance Computing, Taiwan, May 2018.

Jean-Daniel Boissonnat, Hamilton Mathematics Institute, Trinity College, Dublin, Ireland, June 2018.

Steve Oudot, Workshop "Topological Data Analysis meets Symplectic Topology", Tel Aviv, Israel, May 2018.

Steve Oudot, Abel Symposium, Geiranger, Norway, June 2018.

Steve Oudot, Banff workshop on multiparameter persistence, Oaxaca, Mexico, August 2018.

Steve Oudot, ICERM, Brown University, Providence, USA, August 2018.

Steve Oudot, workshop on structural inference in high-dimensional models, Moscow, Russia, September 2018.

Clément Maria, Einstein workshop on Geometric and Topological Combinatorics, Freie Universität, Berlin, Germany, October 2018.

10.1.5. 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 has been a member of the Scientific council of the french "Agence pour les Mathematiques en Interaction avec l'Entreprise et la Societe (AMIES)" until Dec. 2018.

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

Steve Oudot is co-organizing the monthly seminar on combinatorial and computational geometry at Institut Henri Poincaré.

Steve Oudot is co-head (with Luca Castelli-Aleardi) of the GT Géométrie Algorithmique within the GdR Informatique Mathématique.

Steve Oudot is a member of the program committee of the DataIA convergence institute.

10.1.6. Scientific Expertise

- Consulting collaboration for IFPEN to explore potential applications of TDA (from February 2018 to Dec. 2018).

10.1.7. Research Administration

Frédéric Chazal is a member of the Équipe de Direction at Inria Saclay.

Marc Glisse, responsable Raweb pour DataShape

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.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

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

Master: Jean-Daniel Boissonnat and Marc Glisse, 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.

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, preparatory course for international programming contests, 54h eq-TD, L3/M1, École polytechnique, France.

Summer School on topological data analysis and persistent homology: Steve Oudot, advanced topics, 6h eq-TD, Trento, Italy, June 2018.

Summer School on geometric data: Frédéric Chazal and Marc Glisse, Introduction to Topological Data Analysis, 9h eq-TD, Fréjus, Sept. 2018.

Winter School on Computational Geometry, Amirkabir University of Technology, Tehran, Iran. Course on Delaunay Triangulation of Manifolds, March 2018.

10.2.2. Supervision

PhD : Claire Brécheteau, Statistical aspects of distance-like functions , Defended on September 2018, Frédéric Chazal (co-advised by Pascal Massart).

PhD in progress: Bertrand Beaufils, Méthodes topologiques et apprentissage statistique pour l'actimétrie du piéton à partir de données de mouvement, started November 2016, Frédéric Chazal (co-advised by Bertrand Michel).

PhD: Jérémy Cochoy, Decomposition and stability of multidimensional persistence modules, Defended on December 10, 2018, Steve Oudot.

PhD in progress: Yitchzak Solomon, Inverse problems in topological data analysis, started September 1st, 2016, Steve Oudot (co-advised by Jeff Brock, Brown University).

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, Steve Oudot.

PhD in progress: Alba Chiara de Vitis, Concentration of measure and clustering, Jean-Daniel Boissonnat and David Cohen-Steiner.

PhD in progress: Siargey Kachanovich, Manifold reconstruction in higher dimensions, Jean-Daniel Boissonnat.

PhD in progress: Siddharth Pritam, Approximation algorithms in Computational Topology, Jean-Daniel Boissonnat.

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: Vincent Divol, statistical aspects of TDA, started September 1st, 2017, Frédéric Chazal (co-advised by Pascal Massart).

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

10.2.3. Juries

J-D. Boissonnat was a member of the committee for the HDR defense of Aurélien Alvarez (Université d'Orléans).

F. Chazal was a member of the PhD defense committee of Jisu Kim (Carnegie Mellon University, advisors: A. Rinaldo and L. Wasserman), Claire Brécheteau (Université Paris-Saclay, advisors: F. Chazal and P. Massart), Hariprasad Kannan (Centrale-Supelec, advisor: N. Paragios), Dorian Nognen (Ecole Polytechnique, advisor: M. Ovsjanikov).

S. Oudot was a member of the Ph.D. defence committee of Tim Ophelders (T.U. Eindhoven, advisors: Bettina Speckmann and Kevin Buchin).

10.3. Popularization

10.3.1. Interventions

- Frédéric Chazal: Fujitsu Forum, "Topological Data Analysis: from academic success to industrial innovation", Tokyo, Japan, May 2018.
- Frédéric Chazal: "TDA and AI for biomedical applications", Kaohsiung MEdical Technology Expo, Taiwan, May 2018.

DIANA Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

Chadi Barakat is on the editorial board of the Computer Networks journal, and is on the Technical Program Committee for the ACM MECOMM Workshop held in conjunction with the ACM SIGCOMM 2018 conference, and for the Network Traffic Measurement and Analysis Conference (TMA 2019). He co-chaired the workshops at the ACM CoNext 2018 conference and will co-chair the Technical Program Committee for the CCDWN workshop 2019 to be held in conjunction with the WiOpt 2019 conference. He is currently the scientific referee for international affairs at Inria Sophia Antipolis and member of the Conseil d'Orientation Scientifique et Technologique at Inria within the working group of international affairs (COST-GTRI).

Walid Dabbous is chair of the scientific committee of the User Centric Networking (UCN@Sophia) Laroratory of Excellence, and member of the scientific committee of the Academy 1 of the UCAJedi Idex. He is also member of the Ubinet International Master program steering committee. He is chair of the Inria admissibility jury for the young graduate scientist ("CRCN") competitive selection.

Arnaud Legout is on the editorial board of the Computer Networks journal. Arnaud Legout is the president of the Commission of the users of IT resources of Sophia Antipolis Inria research center.

Damien Saucez has co-organised the ACM SIGCOMM Reproducilbity workshop. He is co-chair of 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 2018 ACM Workshop on ns-3. He was member of the TPCs of IEEE ICC 2018, DRCN 2018, ACM WNS3 2018 and is regular reviewer for IEEE, ACM, Elsevier, and Springer journals. Damien Saucez and Walid Dabbous participated to the organization of the first Grid'5000-FIT school in Sophia Antipolis in April 3-6 2018. See https://www.silecs.net/1st-grid5000-fit-school/ for more information.

Thierry Turletti, Senior ACM and IEEE member, served in 2018 in the program committees of the following international workshops and conferences: the 3rd CoRes Workshop at Roscoff, France in May 28-29, the 9th Workshop on ns-3 at Mangalore, India in June 13-14, the 13rd Workshop on Challenged Networks (CHANTS) at New Delhi, India in October 29 and IEEE Globecom at Abu Dabi, UAE in December 9-13. He 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. 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.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master 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 started his PhD on "QoE aware content management in the Internet: caching and transport" in October 2018. He is supervised by Chadi Barakat and funded by the doctoral school EDSTIC of Université Côte d'Azur (UCA).

PhD in progress: Yanis Boussad started his PhD on "Large scale characterization of the exposition to microwaves" in October 2017. He is co-supervised with Leonardo Lizzi, LEAT.

PhD in progress: Giuseppe Di Lena started his PhD on "Building a resilience methodology for NFV/SDN " in Apr 2018. His PhD is co-supervised by Thierry Turletti and Damien Saucez.

PhD in progress: Thibaut Ehlinger: started his PhD on "Mapping Quality of Service metrics to user Quality of Experience in the Internet" in November 2017. He is co-supervised by Chadi Barakat and Vassilis Christophides (EPI MiMove, Inria Paris).

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 in progress: Karyna Gogunska works on "Empowering Virtualized Networks with Measurement As a Service (MaaS)". Her thesis is co-supervised by Chadi Barakat and Guillaume Urvoy-Keller (I3S).

PhD in progress: Muhammad Jawad Khokhar works on "From Network Level Measurements to Expected Quality of User Experience". His PhD is supervised by Chadi Barakat.

PhD in progress: Mohamed Naoufal Mahfoudi works on cross-layer optimization techniques for next generation MIMO-based networks since November 2015. His thesis is co-supervised by Walid Dabbous and Robert Staraj (LEAT).

PhD in progress: Ghada Moualla works on "the problem of network faults and how to circumvent them by the means of Software Defined Networking, virtualization, and service function chaining" since November 2015. Her thesis is co-supervised by Thierry Turletti and Damien Saucez.

PhD: Vitalii Poliakov defended his PhD on "the application of Software Defined Networking on 5G networks in order to optimise the Quality of Experience of network services" in December 2018. His thesis was co-supervised by Damien Saucez and Lucile Sassatelli (I3S).

PhD: Hardik Soni defended his PhD on "Software Defined Networking in challenged environments" in April 2018. His thesis was co-supervised by Thierry Turletti and Walid Dabbous.

PhD in progress: Imane Taibi started his PhD in the Dionysos project-team on "Big data analysis for network monitoring and troubleshooting" in November 2017. She is co-supervised by Gerardo Rubino, Yassine Hadjadj-Aoul and Chadi Barakat.

PhD in progress: Mathieu Thiery started his PhD in the Privatics project-team on "Data protection of connected objects and smartphones" in April 2017. He is co-supervised by Vincent Roca and Arnaud Legout.

PhD in progress: Thibaud Trolliet started his PhD on "Exploring trust on Twitter" in octobre 2017. He is co-supervised with Frederic Giroire.

9.2.3. Juries

Chadi Barakat served as reviewer of Muhammad Ikram thesis, "Analysis and Design of Secure and Privacy Preserving Systems" defended in April 2018 at the University of New South Wales and Data61, Australia.

Walid Dabbous served as reviewer of Cédric Baudoin HDR thesis "Optimisation et intégration des réseaux de télécommunication par satellite" in INP Toulouse, defended in january 17, 2018.

Walid Dabbous served as a jury member for the mid-term review of the Ph.D. thesis of Sumit Kumar (Eurecom) for his thesis entitled "Simultaneous multi-standard SDR platform" in january 18, 2018.

Walid Dabbous served as a jury chair person for the Ph.D. thesis defense of Dolière Francis Somé on "Web Applications Security and Privacy" on october 29, 2018 (Inria, Indes project-team).

Damien Saucez served as jury member of Chi Dung Phung PhD defence, UPMC, Paris. The thesis on "Enriching the Internet control-plane for improved traffic engineering" was defended on March 30, 2018.

Damien Saucez served as jury member of Yue Li PhD defense, Telecom ParisTech, Paris. The thesis on "Future Internet Services based on LISP Technology" was defended on April 26, 2018.

Thierry Turletti served as a jury member for the mid-term review of the Ph.D. thesis of Andrea Tomassilli on "the integration of Network Functions Virtualization (NFV) techniques with Software-Defined Networking (SDN)." on May 24, 2018 (Inria, COATI project-team).

Thierry Turletti served as a jury member for the mid-term review of the Ph.D. thesis of Chia-Yu Chang on "Cloudification and Slicing in 5G Radio Access Network" on June 28, 2018 (Eurecom).

Thierry Turletti served as reviewer of Elie Bouttier PhD thesis, "Livraison de contenus sur un réseau hybride satellite / terrestre", defended on July 5, 2018 at INP Toulouse, France.

Thierry Turletti served as reviewer of Raphael Naves PhD thesis, "Apport de la gestion des interférences aux réseaux sans-fil multi-sauts: Le cas du Physical-Layer Network Coding" defended on November 19, 2018 at INP Toulouse, France.

Thierry Turletti served as reviewer and president of Imad Alawe PhD thesis "Architectures evaluation and dynamic scaling for 5G mobile core networks", defended on November 21, 2018 at Université de Rennes 1, France.

9.3. Popularization

9.3.1. Interventions

Chadi Barakat keeps participating to the organization of the Mediterranean Students Days @ Campus SophiaTech. The sixth edition took place on Feb 12 - 14, 2018. All details on this event can be found at http://univ-cotedazur.fr/events/meddays. He also participated to the organization of the French-American Doctoral Exchange Seminar (FADEx) 2018 held in June 2018 on the three French sites Sophia Antipolis, Grenoble, and Paris.

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. Within the team, we gave a 3h game-based class to 12 collège interns that made an internship at Inria in December to introduce them to the fundamental algorithms used in the Internet (shortest-path, longest prefix matching, distance-vector, AIMD). Damien Saucez was involved in the organization of the "Journée portes-ouvertes" of the Inria Sophia Antipolis premises. Specifically, DIANA presented R2LAB and Electrosmart.

ECUADOR Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committees

Laurent Hascoët is on the organizing commitee of the EuroAD Workshops on Algorithmic Differentiation (http://www.autodiff.org).

9.1.2. Scientific Expertise

Alain Dervieux is Scientific Director for the LEMMA company.

9.2. Teaching - Supervision - Juries

9.2.1. Supervision

PhD : Éléonore Gauci, "Goal-oriented metric-based mesh adaptation for unsteady CFD simulations involving moving geometries", defended december 12, co-advisor A. Dervieux

EPIONE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Member of the Organizing Committees

- M. Sermesant was a co-chair of the MICCAI 2018 Workshop Statistical Atlases and Computational Models of the Heart (STACOM 2018), which was held in Granada, September 16, 2018.
- H. Delingette was a member of the organizing committee of the scientific day at Inria Sophia Antipolis (September 10th) including two keynote speakers on "Digital privacy" and presenting the activities of the UCA academy on "Networks, Information and Digital Society".

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

- H. Delingette was Workshop and Tutorial co-chair for the international conference Medical Image Computing and Computer Aided Intervention (MICCAI 2018) held in Granada, Spain from Sept. 16-20.

9.1.2.2. Reviewer

- M. Lorenzi was a reviewer for the conferences Neural Information Processing Systems (NIPS 2018), International Conference on Machine Learning (ICML 2018), Medical Image Computing and Computer Aided Intervention (MICCAI 2018), International Conference on Learning Representations (ICLR 2019), IEEE International Symposium of Biomedical Imaging (ISBI 2017-19).
- X. Pennec was a reviewer for Medical Image Computing and Computer Aided Intervention (MICCAI 2018) and the MICCAI workshop on Shape in Medical Imaging (ShapeMI 2018).
- M. Sermesant was a reviewer for Medical Image Computing and Computer Aided Intervention (MICCAI 2018) and the MICCAI workshop STACOM.
- H. Delingette was a reviewer for the International Symposium on Biomedical Imaging (ISBI'18), the international conference on computer-aided interventions (IPCAI'18), the conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2018), the International Conference on Computer Vision and Pattern Recognition (CVPR 2018).

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- 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).
- H. Delingette is a member of the editorial board of the journal Medical Image Analysis (Elsevier).
- I. Strobant is editorial coordinator for Medical Image Analysis, Elsevier (since october 2001).
- X. Pennec is a member of the editorial board of the journal Medical Image Analysis (Elsevier), of the International Journal of Computer Vision (Springer), of the SIAM Journal on Imaging Sciences (SIIMS), and of the Journal of Mathematical Imaging and Vision (JMIV).
- 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).

- 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.
- Xavier Pennec was a reviewer for IEEE Transactions on Information Theory, The Annals of Applied Statistics, Linear Algebra and its Applications.
- M. Sermesant was a reviewer for the following journals: Nature Cardiology Reviews, 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, IEEE Transactions in Biomedical Engineering.

9.1.4. Invited Talks

- **N. Ayache** gave the following plenary invited talks:
    – AI for Digital Patients, Int Conf on Image Comput. and Digital Medicine, Chengdu, China, 2018,
    – IA & Healthcare, IA Summit, Sophia Antipolis, 2018,
    – Patient numérique: images, apprentissage, intelligence artificielle, Collége de France 2018,
    – L'intelligence articifielle au coeur de la médecine de précision, Medicen, Paris, 2018.
- **M. Lorenzi** was a speaker for the panel IA & Santé of the SophIA Summit 2018, Sophia Antipolis, November 7th, 2018. He was also invited to give a lecture to the Armour College of Engineering of the Illinois Institute of Technology, Chicago, July 25th 2018, to the General Assembly of the European Clinical Project AMYPAD, Berlin, October 9th 2018, and to the Disease Progression Modeling Workshop of the European project EUROPOND, Geneva, February 19th, 2018.
- **X. Pennec** was invited speaker at the Mathematics and Image Analysis Conference (MIA 2018), 15-17 January 2018, Berlin (DE), at the MFO workshop on Nonlinear Data: Theory and Algorithms, Oberwolfach (DE), 22-28 April 2018, at the MFO workshop on Statistics for Data with Geometric Structure, Oberwolfach (DE), 21-27 January 2018.
- **M. Sermesant** was an invited speaker at the Fields Institute (Toronto) "Mathematics for Medicine" workshop, at the "Myocardial Function" workshop in Leuven, at the CardioFunxion Winter School in Lyon, at the "New Horizons in Heart Failure" conference in Paris, at the "Computing in Cardiology" conference in Maastricht, at the French Radiology Days meeting of Cardiac Imaging in Paris, at the PIC Marie Curie ITN meeting in Bordeaux.
- **H. Delingette** was a keynote speaker at the NAFEMS conference in Paris November 20th 2018, and an invited speaker at the SOFA workshop in Strasburg in November 2018, at the Data Science structuring program evaluation day in Sept. 2018.
- **N. Miolane** was invited speaker at the MFO workshop on Statistics for Data with Geometric Structure, Oberwolfach (DE), 21-27 January 2018, at the Workshop on Geometry in Machine Learning (GiMLi), July 15, 2018, Stockholm, Sweden and at the Seminar of John Hopkins University, Center of Imaging Science, May 19, 2018, Baltimore, USA.

9.1.5. Leadership within the Scientific Community

- **H. Delingette** is a member of the MICCAI Society Board of Directors.

9.1.6. Scientific Expertise

- **N. Ayache** is a member of the following scientific committes:
    – 2016 -: Scientific advisory committee for Région Ile de France (20 members),

   – 2015 -: 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.

- **M. Lorenzi** was reviewer of the funding agencies ANR (Agence Nationale de la Recherche, France) and an expert panel member for the evaluation of the projects submitted to the Flanders Research Foundation, Belgium. He is providing scientific consulting for the company MyDataModels through an Inria Tech research contract.

- **X. Pennec** was a member of the Junior researcher (CR) recruiting committee for Inria-Sophia Antipolis, for the Inria International Chairs Selection Committee, and an evaluator for the Netherlands Organisation for Scientific Research (NWO).

- **M. Sermesant** was an evaluator for the Wellcome Trust (UK) and the NSF (USA).

- **H. Delingette** was an evaluator for the Dutch research council NWO, and or the Research Council of KU Leuven.

9.1.7. Research Administration

- **Xavier Pennec** is co-director and at the board of the Ecole doctorale STIC of Université Côte d'Azur. He is a member of the Doctoral follow-up Committee (CSD) at Inria Sophia Antipolis, of the the "Comité de la Recherche Biomédicale en Santé Publique (CRBSP)" of the Nice hospitals and in charge of the relationships of Inria-Sophia with the Nice University Hospital (CHU). At University Côte d'Azur, 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.

- **Marco Lorenzi** is 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.

- **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 coordinator of the Academy of excellence on "Networks, Information and Digital Society" at the Université Côte d'Azur. He is member of the executive committee 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 Cachan, France.

Master: X. Pennec and H. Delingette, Advanced Medical Imaging, 21h course (28.5 ETD), Master 2 MVA and École Centrale de Paris, France.

9.2.2. Theses Defended

- Pamela Moceri, From normal right ventricle to pathology: shape and function analysis with different loading conditions using imaging and modelling. Started in 2015. Directed by M. Sermesant. Defended on January 25 2018.

9.2.3. PhD in progress

- 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.

- 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.

- Qiao Zheng, Deep learning for cardiac image analysis, Université Côte d'Azur. Started in January 2016. Co-directed by N. Ayache and H. Delingette.

- 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.

- 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.

- 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.

- 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.

- 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.

- 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.

- Nicolas Cedilnik, Personalised Modeling for Ventricular Tachycardia Ablation Planning, Université Côte d'Azur. Started in 2017. 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.

- 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.

- Zihao WANG, Cochlear Implantation Modeling, Planning & Evaluation. Started in 2018. Directed by H. Delingette.

9.2.4. Juries

- Marco Lorenzi was a jury member for the PhD probation exam of Kurt Kutajar and Remi Domingues (EURECOM), Isa Costantini (Athena, Inria), and Radia Zeghari (CoBTeK, Inria, CHU Nice).

- Xavier Pennec was co-supervisor of the PhD thesis of Pauline Bezivin Frere (U. Orsay) defended in July 2018, reviewer for the PhD of Maël Dugast, INSA Lyon, FR, Dec. 2018 and for the PhD of Baptiste Moreau, University of Montpellier II, FR, March 2018. He was the president of the jury of the HDR of Laurent Risser (HDR), U. Toulouse, FR, November 2018.

- Hervé Delingette was a reviewer in the PhD thesis committee of C. Jaquet (ESIEE- Univ. of Paris-Est).

- Maxime Sermesant was a reviewer and a member of the PhD jury of Josselin Duchateau, Bordeaux University (Dec 20), a reviewer for the PhD of Sergio Sanchez, UPF Barcelona (Sep 21) and a member of the PhD jury of Ketan Bacchuwar, ESIEE (Jun 5).

9.3. Popularization

9.3.1. Interventions

- Nicolas Cedilnik, Pierre Tramaloni, Thomas Demarcy, Hervé Delingette and Maxime Sermesant organised a cardiac intervention simulator demo and a cochlear implant demo for the Science Festival at Inria (Dec 7).

- On April the 10th, during the "mathematics week", 2 PhD students (Nicolas Cedilnik and Raphael Sivera) met young pupils (age 8-10) at the ESPE (école supérieure du professorat et de l'éducation) Nice. The pupils were introduced to mathematical concepts in a practical way through the use of toys.

FACTAS Team

9. Dissemination

9.1. Promoting Scientific Activities

- V. L. Coli presented oral communications at the "Journées Idex UCA[JEDI] Matière, Lumière, Interactions", October 4-5, Fréjus, France, http://univ-cotedazur.fr/events/MLI/fr, and at the Journée d'échanges "Applications de la tomographie par rayons X", November 23, Paris, France, https://jea-tomo3d-2018.sciencesconf.org/.

- J. Leblond and K. Mavreas presented oral communications at the 5th International Conference "Modern Mathematical Methods in Science and Technology 2018 (M3ST '18)", September 2-4, Kalamata, Greece.

- K. Mavreas gave a talk at the PhD Seminar at Inria Sophia, France, November 13, https://phd-seminars-sam.inria.fr.

- G. Bose, S. Fueyo and D. Martinez Martinez presented posters at the Workshop ERNSI 2018, http://mlg.eng.cam.ac.uk/ernsi2018/.

- G. Bose gave a talk at the 23rd International Symposium on Mathematical Theory of Networks and Systems http://mtns2018.ust.hk/, July 16-20 2018, Hong-Kong.

- D. Martinez Martinez gave a talk at the 7th International Workshop on Microwave Filters https://artes.esa.int/news/7th-international-workshop-microwave-filters, 17-19 Apr 2018, Noordwijk, Netherlands, and a talk at the 2nd URSI AT-RASC (Atlantic Radio Science) http://www.ursi.org/events.php?atrasc=on, May 28 - June 1, 2018, Gran Canaria, Spain, and a talk at IMS 2018 https://ims2018.org/, June 10-15 2018., Philadelphia, USA

- A. Cooman gave a talk at IMS 2018 https://ims2018.org/, June 10-15, 2018, Philadelphia, USA.

- F. Seyfert gave a talk at IMS 2018 https://ims2018.org/, June 10-15 2018, Philadelphia, USA and at the KTH's seminar May 15, Stockholm, Sweden and at XLIM seminar, October 3, Limoges, France

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

- L. Baratchart, S. Chevillard, and J. Leblond organized (scientifically and practically) the Spring School/Workshop "Inverse problems and approximation techniques in planetary sciences" [0], at Inria Sophia Antipolis, May 16-18. It was financially supported by UCA[Jedi] and gathered around 20 participants.

9.1.1.2. Member of the Organizing Committees

- L. Baratchart and J. Leblond organized a mini-symposium [0] on "Inverse source problems with applications to planetary sciences and medical imaging" at the 9th international conference "Inverse problems: modeling and simulation (IPMS 2018)", Malta, May 21-25.

- Fabien Seyfert organized a workshop at IMS 2018, on "Advanced Synthesis Techniques for reduced size filtering techniques", https://ims2018.org/technical-program/workshops-and-short-courses#2018-06-15, Philadelphia, USA.

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[0]http://www-sop.inria.fr/apics/IPAPS18/
[0]http://www.ipms-conference.org/ipms2018/index.php/m20

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

L. Baratchart sits on the Program Committee of *Applied Inverse Problems 2019*, to be held in Grenoble, France.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

L. Baratchart sits on the editorial boards of "Constructive Methods in Function Theory" and "Complex Analysis and Operator Theory".

9.1.3.2. Reviewer - Reviewing Activities

S. Chevillard was a reviewer for the journal *Transactions on Mathematical Software*.

J. Leblond was a reviewer for the journals *Numerical Algorithms, DMV Jahresberichte*.

M. Olivi was a reviewer for the journal *Automatica* and for the *18th IFAC Symposium on System Identification* (SYSID 2018).

F. Seyfert is a reviewer of *IEEE Transactions on Microwave Theory and Techniques*.

L. Baratchart was a reviewer for the seed fund program at MIT.

9.1.4. Invited Talks

- L. Baratchart was an invited speaker at the SIGMA day organized by SMAI at Université Pierre et Marie Curie, November 30.

- L. Baratchart and J. Leblond were invited to give talks at the IPMS 2018 conference, Malta, May (see Section 9.1.1). They were invited speakers at the Conference "Advances in Operator Theory with Applications to Mathematical Physics", http://www1.chapman.edu/~alpay/conf2018/conf2018.html, Chapman University, Orange, CA, USA, November.

- L. Baratchart and K. Mavreas gave talks at the workshop "Inverse problems and approximation techniques in planetary sciences", Sophia Antipolis, France, May.

9.1.5. Scientific Expertise

L. Baratchart is sitting on committee 40 of the ANR.

J. Leblond was a reviewer for the Strategic Research Programmes of the Research Council of the Vrije Universiteit Brussel (VUB, Brussel, Belgium).

F. Seyfert is a member of the IEEE MTT-8 committee for filters and passive components.

9.1.6. Research Administration

L. Baratchart sits on the committee "Mathématiques et Informatique" of the French Agency for research (ANR).

J. Leblond is an elected member of the "Conseil Scientifique" and of the "Commission Administrative Paritaire" of Inria.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Colles: S. Chevillard is giving "Colles" at Centre International de Valbonne (CIV) (2 hours per week).

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.

PhD in progress: D. Martinez Martinez, *Méthodologie et Outils de Synthèse pour des Fonctions de Filtrage Chargées par des Impédances complexes*, since October 2015, advisors: L. Baratchart, F. Seyfert, M. Olivi.

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).

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).

Post-doc.: A. Cooman, from January 2017 until June 2018, advisors: F. Seyfert and M. Olivi.

9.2.3. Juries

J. Leblond was a member of the "Comités de Suivi Doctoraux" (preliminary evaluation committees, after one year of PhD) for the ongoing PhDs of Kostiantyn Maksymenko (project-team Athena, doctoral school STIC, UCA), and for Arne Bechensteen (project-team Morpheme, I3S-CNRS), May. She was a member of a "Comité de Sélection" for professors at the University Paris Descartes (MAP5).

M. Olivi was a member of the "jury d'admission du concours CR" of the Inria Research Center.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

M. Olivi is responsible for Scientific Mediation and president of the Committee MASTIC (Commission d'Animation et de Médiation Scientifique) https://project.inria.fr/mastic/. Her main contributions related with this mission were:

- submit applications to get founding for 2019: "cordées de la réussite" (accepted) et "APOCS région".
- co-organize 10 robotic sessions for 2 classes of middle school students (device "MEDITES" http://medites.fr, founded by ANRU, the "Agence Nationale de Rénovation Urbaine"),
- co-organize the "stage MathC2+" https://project.inria.fr/mastic/mediation/stage-mathc2/, a four-day internship for 50 high school students ("secondes", about 16 years old) organized by the Committee MASTIC and its partners (June 19-22),
- co-organize Inria participation to the event "Le Village des Sciences et de l'Innovation" in Antibes (October 20-21, 10000 people), and the event "Mouans-Sartoux fête les sciences du quotidien" http://univ-cotedazur.fr/events/fetedelascience.
- co-organize about 10 "cafés scientifiques" (c@fé-in's and cafés Techno, 30 to 80 participants each) https://project.inria.fr/mastic/category/cafein/.

9.3.2. Education

- M. Olivi animated a half-day workshop session "activités débranchées" at "l'ESPE de Nice" for primary school students (April 10).

9.3.3. Interventions

- National events: M. Olivi participated to the event "Le Village des Sciences et de l'Innovation" in Antibes (October 20-21, 8000 people) and to the event "Mouans-Sartoux fête les sciences du quotidien" (October 13, 1000 people).
- In educational institutions: M. Olivi participated to the event "bilan Medium's" at the "collège Émile Roux, Le Cannet".

- Welcoming of schoolchildren or the general public in an Inria center: M. Olivi animated a workshop session during the "stage MathC2+", a four-day internship for high-school students organized by the Committee MASTIC and its partners (June 19-22).

9.3.4. Internal action

- M. Olivi presented the scientific objects produced during the year at the CaféIn of the Research Center, https://project.inria.fr/mastic/cafe-in-12-fevrier-manipulons-et-echangeons/, February.
- J. Leblond together with members of the SED gave a communication at the CaféIn of the Research Center, http://project.inria.fr/mastic/category/cafein/, October.

9.3.5. Creation of media or tools for science outreach

M. Olivi participated in the creation of the web pages https://pixees.fr/jouons-avec-des-experiences-scientifiques/.

FOCUS Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. General Chair, Scientific Chair

S. Martini: Workshop "Formalisms at the interface with machines, languages and systems", Bertinoro October 16-17 2018. https://programme.hypotheses.org/autumn-workshop-formalisms-at-the-interface-with-machines-languages-and-systems

U. Dal Lago: First Workshop on Probabilistic Interactive and Higher-Order Computation, http://pihoc2018.cs.unibo.it/

8.1.1.2. Member of the Organizing Committees

Steering Committee membersip:

I. Lanese: Conference on Reversible Computation (RC); Microservices, DevOps, and Service-Oriented Architecture (MiDOS) track of the Annual ACM Symposium on Applied Computing (SAC); IFIP Int. Conference on Formal Techniques for Distributed Objects, Components and Systems (FORTE)

8.1.2. Scientific Events Selection

8.1.2.1. Chair of Conference Program Committees

U. Dal Lago: 21st Int. Conference on Foundations of Software Science and Computation Structures (FoSSaCS)

8.1.2.2. Member of the Conference Program Committees

M. Bravetti: IEEE Int. Conference on Big Data (BigData 2018); 12th IEEE Int. Conference On Big Data Science and Engineering (BigDataSE 2018); 18th IEEE Int. Conference on Software Quality, Reliability, and Security (QRS 2018); 30th IFIP Int. Conference on Testing Software and Systems (ICTSS 2018); 16th Int. Conference on Software Engineering and Formal Methods (SEFM 2018); 15th Int. Conference on Applied Computing (AC 2018)

U. Dal Lago: Thirty-Third Annual ACM/IEEE Symposium on Logic in Computer Science (LICS); Third Int. Conference on Formal Structures for Computation and Deduction (FSCD); 13th Workshop on Logical and Semantic Frameworks with Applications (LSFA);

I. Lanese: 11th IEEE Int. Conference on Service-Oriented Computing and Applications (SOCA 2018); 11th Interaction and Concurrency Experience (ICE 2018); 10th Conference on Reversible Computation (RC 2018); 15th Int. Conference on Formal Aspects of Component Software (FACS 2018); Second Int. Workshop on Microservices: Agile and DevOps Experience (MADE18)

D. Sangiorgi: 27th European Symposium on Programming (ESOP); 13th int. conf. on Software Technologies (ICSOFT'18); Symposium on Dependable Software Engineering (SETTA'18); IFIP Int. Conference on Formal Techniques for Distributed Objects, Components and Systems (FORTE); int. conf. on Logic for Programming, Artificial Intelligence and Reasoning (LPAR-22).

A. Yoshimizu: Games for Logic and Programming Languages XIII (GaLoP 2018).

8.1.3. Journal

8.1.3.1. 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.

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.

8.1.4. *Invited Talks*

I. Lanese: 10th Conference on Reversible Computation (RC 2018)

D. Sangiorgi: 19th Italian Conference on Theoretical Computer Science (ICTCS'18)

Schools:

U. Dal Lago: "Lambda Calcolo e Teoria dei Tipi", Scuola AILA, Gargnano 2018

8.1.5. *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 the vice-presiden of EQANIE (European Quality Assurance Network for Informatics Education), since 1 January 2018.

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.

S. Martini is a member of the Board of CINI (Italian National Interuniversity Consortium for Informatics), designated by the Ministry for Semplificazione e Pubblica Amministrazione, from 2015.

8.2. Teaching - Supervision - Juries

8.2.1. *Teaching*

- Mario Bravetti

  Master: "Linguaggi, Compilatori e Modelli Computazionali", 120 hours, 1st year, University of Bologna, Italy.
- Ugo Dal Lago

  Undergraduate: "Introduction to Programming in Python", 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", 36 Hours, 2nd 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", 56 hours, 1st year, University of Bologna, Italy.

Master: "Ingegneria del Software Orientata ai Servizi", 22 hours, 2nd 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

    Undergraduate: "Programming in Python", 72 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

    Undergraduate: "Computer Architectures", 60 hours, 1st year, University of Bologna, Italy

    Undergraduate: "Algoritmi e strutture dati", 60 hours, 2nd year, University of Bologna, Italy

8.2.2. Supervision

Below are the details on the PhD students in Focus: starting date, topic or provisional title of the thesis, supervisor(s). These are all PhDs in progress.

- Raphaelle Crubillé, October 2015, "Bisimulation Metrics and Probabilistic Lambda Calculi", Université Denis Diderot and University of Bologna. Supervisors Thomas Ehrhard and 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.
- Francesco Gavazzo, October 2015, "Coinductive Techniques for Effectful Lambda Calculi". Supervisor U. Dal Lago.
- Michael Lodi, January 2017, "Growth Mindset and Computational Thinking". Supervisor: S. Martini.
- Tong Liu, November 2015, "Constraint based languages for Software Defined Networks". Supervisor: Maurizio Gabbrielli.
- Stefano Pio Zingaro, November 2016, "High level languages for Internet of Things applications". Supervisor: Maurizio Gabbrielli.
- Gabriele Vanoni, November 2018. "Optimal Reduction, Geometry of Interaction, and the Space-Time Tradeoff". Supervisor Ugo Dal Lago.

8.2.3. Juries

Daniel Hirschkoff was reviewer (rapporteur) for the PhD thesis Guvan Cabon, in december 2018 (Univ. Rennes).

Simone Martini has been member of the PhD jury of Francesco di Giacomo, Università Ca' Foscari Venezia (June 2018) and Tilburg University (November 2018)

8.3. Popularization

8.3.1. Education

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.
- S. Martini has given various talks at institutes and workshops on the teaching methods for Computer Science, including a talk on "Abbiamo davvero bisogno del pensiero computazionale?", at the conference "I bit rotolano dovunque", Università di Roma Tor Vergata, May 2018.

8.3.2. Interventions

Daniel Hirschkoff was part of the organising committee for the "École Jeunes Chercheurs en Programmation", 25-29 june 2018, in Lyon.

8.3.3. Other duties

S. Martini has been Head of the Department of Computer Science and Engineering, University of Bologna, until May 2018.

M. Gabbrielli is Deputy Head of the Department of Computer Science and Engineering, University of Bologna, since May 2018.

G. Zavattaro is coordinator of undergraduate studies at the Department of Computer Science and Engineering, University of Bologna (Informatica per il Management).

<h1 style="color:red; text-align:center">GRAPHDECO Project-Team</h1>

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

G. Drettakis chairs the Eurographics (EG) working group on Rendering, and the steering committee of EG Symposium on Rendering.

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

- George Drettakis participated in the program committee of Eurographics Symposium on Rendering (EGSR) 2018 and Eurographics 2018 STAR.
- Adrien Bousseau participated in the program committee of Eurographics 2018 and SIGGRAPH 2018.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- George Drettakis was an Associate Editor of ACM Transactions on Graphics until May 2018, and of Computational Visual Media (CVM). He also chaired the ACM TOG Editor-in-Chief (EiC) search committee, which appointed Marc Alexa as ACM TOG EiC.
- Adrien Bousseau is an Associate Editor of The Visual Computer Journal.

9.1.3.2. Reviewer - Reviewing Activities

- Yulia Gryaditskaya has been a reviewer for Eurographics.
- Tibor Stanko has been a reviewer for DGCI 2019 – International Conference on Discrete Geometry for Computer Imagery, and the Computers and Graphics journal.
- Adrien Bousseau was reviewer for SIGGRAPH Asia 2018, ACM Transactions on Graphics, ACM CHI.
- George Drettakis was reviewer for SIGGRAPH.

9.1.4. Invited Talks

- George Drettakis gave a keynote talk at Driving Simulation Conference (DSC '18) (http://dsc2018.org/)
- Adrien Bousseau gave an invited talk at the SophIA summit event on artificial intelligence (http://sophia-summit.fr/) and a keynote talk at the Skin of Things workshop on material perception and depiction (https://theskinofthings.github.io/).
- Tibor Stanko was invited to present his PhD work at Journées Informatique et Géométrie (JIG) 2018 in Lyon.

9.1.5. Scientific Expertise

Adrien Bousseau reviewed a grant proposal for the ANR.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Simon Rodriguez, theoretical computer science (L1) and software engineering (L3), 40h eq. TD, Polytech Nice-Sophia - Université Côte d'Azur (France)

Licence : Julien Philip, Introduction au Web et Application du Web, L2, 64h, Polytech Nice-Sophia - Université Côte d'Azur (France)

Master: George Drettakis and Adrien Bousseau, Introduction to Computer Graphics, M1, 20h eq. TD, Université Côte d'Azur (France)

9.2.2. Supervision

PhD : Jean-Dominique Favreau, Compact image vectorization by stochastic approaches, Université Côte d'Azur, March 15th 2018, Florent Lafarge (Titane) and Adrien Bousseau

PhD in progress : Johanna Delanoy, Data-driven sketch-based modeling, since October 2015, Adrien Bousseau

PhD in progress : Valentin Deschaintre, Data-driven material capture, since November 2016, Adrien Bousseau and George Drettakis

PhD in progress : David Jourdan, Interactive architectural design, since October 2018, Adrien Bousseau and Melina Skouras (Imagine)

PhD in progress : Julien Philip, Data-driven image-based rendering and relighting, since November 2016, George Drettakis

PhD in progress : Simon Rodriguez, Leveraging semantic information in image-based rendering, since November 2016, George Drettakis

PhD in progress : Théo Thonat, Image-based rendering of thin and stochastic structures, since November 2015, George Drettakis

9.2.3. Juries

- George Drettakis was a Ph.D. Reviewer for Fabian Langguth (TU Darmstadt), and member "comité suivi de thèse" of J-P. Bauchet.
- Adrien Bousseau was a Ph.D. Reviewer for James Hennessey (University College London) and Dorian Nogeng (Ecole Polytechnique).

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- George Drettakis chairs the local "Jacques Morgenstern" Colloquium organizing committee.
- Adrien Bousseau is a member of "commité du centre" and "commité du suivi doctoral".

9.3.2. Articles and contents

- Nice Matin published an article about the ERC project of George Drettakis.

9.3.3. Interventions

- Bastien Wailly gave a demo of our sketch-based modeling tool during *Fete de la Science*.
- Valentin Deschaintre presented his work to high school student and advised them on a small scientific project for *Math C2+*.

GRAPHIK Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

- Co-chair of the Doctoral Consortium for the KR conference, Tempe, Arizona, October 27th 2018. http://reasoning.eas.asu.edu/kr2018/.
- Co-chair of the Tutorial Track for the IJCAI conference, Stockholm, Sweden, 13th July 2018. https://www.ijcai-18.org/.
- Scientific co-chair of the international Workshop "Reasoning on Data" associated with the international conference The Web 2018, April 24, 2018. https://sites.google.com/site/2018rod/
- Co-organization of a one-day meeting of the group "Reasoning on Data", common to GDR MaDICS and IA, October 4, 2018. http://www.lirmm.fr/rod/rod3.html

9.1.1.2. Member of the Conference Program Committees

We are regularly program committee members for the major conferences in AI (i.e., IJCAI, AAAI, ECAI, AAMAS), and more focused conferences and workshops (such as RuleML+RR, Description Logics, COMMA etc.). We also take part in the animation of the national community (JIAF, EGC, IC, BDA). For 2018, we served in the following program committees:

International

- IJCAI / ECAI 2018 (International Conferences on Artificial Intelligence): Senior PC and PC
- AAAI 2018 (AAAI Conference on Artificial Intelligence): Senior PC
- AAMAS 2018 (International Conference on Autonomous Agents and Multiagent Systems): PC
- RuleML+RR 2018 (International Joint Conference on Rules and Reasoning): PC
- Description Logics 2018: PC
- KR 2018 (Knowledge Representation and Reasoning): PC

National

- IC 2018 (Ingénierie des Connaisances) : PC
- EGC 2018 (Conférence sur l'Extraction et Gestion de Connaissances): PC
- JIAF (Journées d'Intelligence Artificielle Fondamentale): PC

9.1.2. Invited Talks

- Invited tutorial, Reasoning on data: the ontology-mediated query answering problem, 6th World Congress and School on Universal Logic (in association with UNILOG 2018), Vichy, 16-20 June, 2018 (Marie-Laure Mugnier)
  https://www.uni-log.org/start6s.html
- Invited Seminar, Answering Conjunctive Regular Path Queries over Existential Rule Knowledge Bases, Quantitative Logics and Automata Seminar, TU Dresden, July 10, 2018 (Marie-Laure Mugnier)
- Invited Talk, L'interrogation de données en présence d'ontologies : Exploiter les connaissances pour mieux tirer parti des données, Journées Nationales du GDR Informatique Mathématiques (IM), April 2018 (Meghyn Bienvenu)

- Invited Talk, Accès aux données médiatisé par des ontologies, Journées plénières du GDR IA, October 2018 (Meghyn Bienvenu)

- Invited Talk, Ontology-Mediated Query Answering and Heterogeneous Data, Séminaire INRA du réseau IN-OVIVE, June 2018 (Federico Ulliana)

- Invited talk, Ontology-mediated query answering: Harnessing knowledge to get more from data, Annual Meeting of GT ALGA (GDR IM), October 2018 (Meghyn Bienvenu)

- Invited talk, Difficultés posées par les prédicats calculés en Ontology Mediated Query Answering, Meeting of GT RoD (GDR IA), October 2018 (Jean-François Baget)

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 2018, Jean-François Baget gave Master courses (40 h) and Meghyn Bienvenu gave a 3-hour tutorial at the international conference KR 2018 on "Inconsistency-Tolerant Ontology-Mediated Query Answering".

Moreover, faculty members have some specific responsibilities in the Computer Science Licence and Master. Madalina Croitoru is the head of Special Conversion Year at IUT (since 2014) and the head of international relations for the computer science department at IUT (since 2018). 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 Leclere is deputy head of the computer science department of the faculty (since 2015). He is also in charge of the Information Systems of the faculty. 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: Abdelraouf Hecham, Defeasible Reasoning for Existential Rules, University of Montpellier, 9th of July 2018, P. Bisquert and M. Croitoru.

PhD in progress: Stathis Delivorias. Supervisors: Federico Ulliana, Michel Leclère and Marie-Laure Mugnier. "Boundedness and Module extraction in Existential Rules KBs". Started Oct. 2015.

PhD in progress: Bruno Yun. Supervisors: Madalina Croitoru, Rallou Thomopolous, Srdjan Vesic (CRIL). "Decision Making and Ranking Semantics in Logical Argumentation Frameworks". Started October 2016.

PhD in progress: Maxime Buron (CEDAR Inria team). "Efficient reasoning on large heterogeneous graphs",Supervisors: François Gaosdoué (IRISA/CEDAR) Ioana Manolescu (CEDAR), Marie-Laure Mugnier. Started October 2017.

9.2.4. Juries

- Marie Laure Mugnier was a PhD reviewer for Duc Minh TRAN, University of Nice, July 2018.

- Marie Laure Mugnier was a PhD jury member for Jieying CHEN, University Paris Sud, November 2018.

- Meghyn Bienvenu was a PhD jury member for Christos Rantsoudis, University of Toulouse / IRIT, December 2018.

9.3. Popularization

9.3.1. Articles and contents

- M. Chein, Sur la science informatique et son installation à Montpellier, Conf. Association française pour l'avancement des sciences, Montpellier avril 2017 /Bull. Acad. Sc. Lett. Montp., vol. 48, suppl. C1 (2017), p.89-102/
- M. Chein, L'informatique : la science au coeur du numérique , Conf. Académie des Sc ; et Lett. De Montpellier, mai 2017, /Bull. Acad. Sc. Lett. Montp., vol.48 (2017), p.203-214/

9.3.2. Interventions

- M. Chein, Intelligence artificielle : Mythes et Réalités, Médiathèque, La Boissière, mars 2018
- M. Chein, La complexité en Informatique. Complexité spatio-temporelle des programmes, des algorithmes et des problèmes. Pierre Rouge Sciences, Assas, janvier 2018

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

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation, Steering committees

- 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,
- Y. Papegay is a permanent member of the International Steering Committee of the International Mathematica Symposium conferences series.

10.1.2. Reviewing

- The members of the team reviewed numerous papers for numerous international conferences and journals

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- J-P. Merlet is board member of the Journal of Behavorial Robotics
- E. Wajnberg is Editor-in-Chief of the journal BioControl, a board member of the journals Entomologia Experimentalis et Applicata, Neotropical Entomology, Applied Entomology and Zoology and Journal of Economical Entomology

10.1.4. Invited Talks

- J-P. Merlet has given a talk on parallel robots at the workshop "Rigidity theory for multi-agent systems meet parallel robototics", Nantes, a talk on interval analysis at SCAN, Tokyo and a talk on bibliometric indicators at the SIF workshop
- E. Wajnberg has been invited for talks by the University of Palermo (Italy, February), the University of Haifa (Israel, March), the conference "l'Ere du Temps" (Nice, June), the European Congress of Entomology, Naples (Italy, July), and the University dell'Insubria (Varese, Italy, November).

10.1.5. 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. J-P. Merlet is an IEEE Fellow, doctor honoris causa of Innsbruck University and IFToMM Awards of Merits
- Y. Papegay is a member of the OpenMath Society, building an extensible standard for representing the semantics of mathematical objects.

10.1.6. 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).

10.1.7. Research Administration

- J-P. Merlet is an elected member of the Academic Council of UCA COMUE, 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 CUMIR (the committee managing the interaction between researchers and the computer support staff)
- O. Pourtallier is a board member of SeaTech, an Engineering School of University of Toulon. She is responsible of the NICE committee (long term invited scientists and post-doctoral student selection) and a member of the CGL AGOS

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

In February, Y. Papegay has been visiting lecturer of University of French Polynesia, where he gave an object oriented programming course.

O. Pourtallier lectured 6 hours on game theory to Master OSE (M2), at École des Mines de Paris, Sophia Antipolis, France

E. Wajnberg has taught one week course (about 30 h) about the use of the R program and statistics for PhD students and senior scientists in Rehovot (Israel, March), and another week with the same teaching program in Piracicaba (Brazil, July).

10.2.2. Supervision

PhD : A. Massein, Design of Instrumented Environment for Human Monitoring, defended in november 2018, supervisor: Y.Papegay.

PhD in progress: W. Plouvier. Improving pest control efficiency: a modelling approach (2015-2019). Supervisor: E. Wajnberg.

10.2.3. Juries

- J-P. Merlet has been a member of four PhD juries. He was also president of the jury for the Best PhD thesis award of the robotics GDR. He is a member of the "Comité de Suivi Doctoraux" (preliminary evaluation committee of PhD students) of Dayan Hassan (project team Chorale) and of Matheuse Laranjeira (Toulon University).
- E. Wajnberg has been a member of one PhD jury.

10.3. Popularization

10.3.1. Articles and contents

- J-P. Merlet has given two interviews at Nice-Matin and is a member of the scientific committee for the preparation of a permanent robotics exhibition at Cité des Sciences et de l'Industrie, Paris

10.3.2. Education

- Y.Papegay is actively participating to the Math.en.Jeans initiative for Mathematics teaching for undergraduate students. He is developing several pedagogical resources based on small robotics devices at high-school level. He has 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.

10.3.3. Interventions

- J-P. Merlet and Y. Papegay have meet several schoolchildren (3ème)
- J-P. Merlet has given a talk during the Art'DI (a meeting between handicapped people and artists) day at Cannes
- J-P. Merlet and E. Wajnberg have given two talks in the framework of "Science pour tous"

10.3.4. Internal action

- J-P. Merlet has given a talk at Café Techno and at Café ADSTIC (for local PhD students), has invited Nathalie Rochet, a member of south-east CPP to give a talk at a Café-In

10.3.5. Creation of media or tools for science outreach

- the Hephaistos team proposes simple cable-driven parallel robots that are used to illustrate scientific concepts such as showing what is a sinus, instantiating the geometrical definition of an ellipse

INDES Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. General Chair, Scientific Chair

- Nataliia Bielova was the co-chair (together with Claude Castelluccia) of the Francophone workshop on Privacy Protection " l'Atelier sur la Protection de la Vie Privée" (APVP), which took place in Porquerolles (France) from 3 to 6 June 2018. https://project.inria.fr/apvp2018/
- Manuel Serrano was the general chair of the Programming'18 conference that took place in Nice in April 2018, https://2018.programmingconference.org/.
- Tamara Rezk was co-chair and co-organizer (together with Sébastien Bardin and Stéphanie Delaune) of the yearly event of the Working Group "Méthodes formelles pour la sécurité" (GT-MFS) in the context of the Pré-GDR Sécurité meeting in Paris (May 30, 2018).
- Ilaria Castellani was the co-chair (together with Mohammad Reza Mousavi) of the workshop TRENDS 2018, which took place in Beijing on September 8, in association with the CONCUR 2018 conference. https://concurrency-theory.org/events/workshops/trends

8.1.1.2. Member of the Organizing Committees

- Tamara Rezk was the local chair of the Programming'18 conference that took place in Nice in April 2018 https://2018.programmingconference.org/.

8.1.2. Scientific Events Selection

8.1.2.1. Chair of Conference Program Committees

- Nataliia Bielova was the PC co-chair (together with Claude Castelluccia) of the Francophone workshop on Privacy Protection " l'Atelier sur la Protection de la Vie Privée" (APVP), which tool place in Porquerolles (France) from 3 to 6 June 2018. https://project.inria.fr/apvp2018/
- Manuel Serrano was the co-chair together with Sukyong Ryu from Kaist University of the WWW'18 alternate Programming Track, https://www2018.thewebconf.org/call-for-papers/web-programming-cfp/, which took place in April in Lyon.

8.1.2.2. Member of the Conference Program Committees

- Nataliia Bielova served in the Program Committees of IEEE SecDev'18, POST'18, ProWeb'18, eCrime'18, APVP'18. She also is a member of the Steering Committee of the PLAS workshop.
- Manuel Serrano served in the Program Committee of ProWeb'18 workshop.
- Tamara Rezk served in the Program Committees of NDSS'18, Euro S&P'18, APLAS'18, POST'18, WWW'18, PriSC'18, CSF'18, SEC@SAC'18. She is also a member of the Steering Committee of the POST conference at ETAPS.
- Ilaria Castellani served in the Program Committee of the conference FORTE'18.

8.1.2.3. Reviewer

- The team members have been reviewers for the following conferences and workshops: PoPETs'18, CONCUR'18, FORTE'18, EXPRESS/SOS'18.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

- Ilaria Castellani is a member of the editorial board of *Technique et Science Informatiques*.

- Tamara Rezk is a member of editorial Board of Interstices and blog Binaire du Le Monde.

8.1.3.2. Reviewer - Reviewing Activities

- The team members have been reviewers for the following journals: JCS, Acta Informatica, JLAMP, TCS, JOT.

8.1.4. Invited Talks

- Nataliia Bielova was an invited speaker at the workshop "Transparence et opacité des systèmes d'information" in April http://transparence.conf.citi-lab.fr/. She gave a talk at the Journées Scientifiques Inria in June https://journees-scientifiques2018.inria.fr/francais-programme/. She gave a tutorial on Web Tracking Technologies at TheWeb'18 conference in April https://www2018.thewebconf.org/program/tutorials-track/tutorial-203/ and gave a keynote talk at the Journée scientifique RISE/DS4H of Université Cote d'Azur in September. Nataliia was an invited speaker at Harvard University where she gave a talk on Web tracking technologies in October 2018. She also gave an invited lecture on "Online tracking and privacy protection", at Master 2 course, Carnegie Mellon University in October and an invited lecture on "Ethics and Internet Security" in Master in Digital Business course at SKEMA Business school in March.

- Manuel Serrano gave an invited talk on on Web Programming at the Programming ProWeb'18 workshop in April, https://2018.programming-conference.org/track/proweb-2018-papers. He gave a two hours talk on Reactive Web Programming during the Synchron'18 workshop https://project.inria.fr/synchron2018/fr/. He also was an invited speaker at Brown University where he gave a talk on JavaScript implementation.

- Tamara Rezk was an invited speaker at the seminar in the context of Inaugural lecture of Marieke Huisman, University of Twente, January 2018. She also gave a talk in the Dagstuhl Seminar on Secure Compilation of May 2018 and at Harvard University in October 2018.

8.1.5. Leadership within the Scientific Community

- Ilaria Castellani is the chair of the IFIP TC1 WG 1.8 on Concurrency Theory since June 2014. In 2018 she has been reelected for a second term.

- Ilaria Castellani is a Management Committee member of the COST Action IC1405 on Reversible Computation (November 2014-April 2019).

8.1.6. Research Administration

- Nataliia Bielova is a member of "Comité du Suivi Doctoral (CSD)" (Supervision of PhD students) of the Inria Sophia Antipolis Mediterranée research center. She was a member of the Inria "Master Transverse" evaluation committee.

- Manuel Serrano was the "Délégué scientifique" (head of research) of the Inria Sophia Antipolis Mediterranée research center until end of August. He was member of the Inria Evaluation Committee until that time.

- Tamara Rezk is a member of " Commission de Développement Technologique (CDT)" of the Inria Sophia Antipolis Mediterranée research center.

- 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 Scientific Committee of the Morgenstern Colloquium. She is also a member of the Réseau Parité of Université Côte d'Azur, and of the Scientific Committee of the Forum Numerica Seminar of Academy 1 of Université Côte d'Azur.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master : Nataliia Bielova, Security of Web Applications, 18ETD, niveau M2, University of Pierre et Marie Curie, France

Master : Nataliia Bielova, Foundations of Privacy, 1.5ETD, niveau M2, Carnegie Mellon University, USA

Master: Nataliia Bielova, Ethics and Internet Security, 1.5ETD, M2, SKEMA Business school, France.

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

Master : Tamara Rezk, Security of Web Applications, 36ETD, niveau M2, University of Pierre et Marie Curie, France

Doctorat : Nataliia Bielova, Apprentissage et fouille de données sur les Réseaux, 2.25ETD, École de Recherche ResCom, France

Doctorat : Nataliia Bielova, Ecole de Cybersécurité, 3ETD, UCA, France

Doctorat : Nataliia Bielova, Web Privacy, 30ETD, University of Trento, Italy

E-learning

MOOC: Nataliia Bielova, "Protection de la vie privée dans le monde numérique", 1 Module, 8 sequences, FUN-MOOC, Inria, grande public, formation continue, 8900 inscrit au 18 Decembre 2018.

8.2.2. Supervision

HdR :Tamara Rezk, *Secure Programming* [11], Université Côte d'Azur, 03/04/2018

PhD : Dolière Francis Somé, *Web Applications Security and Privacy* [12], Université Cote d'Azur, 29/10/2018, Nataliia Bielova and Tamara Rezk

PhD: Colin Vidal, *Programmation Web réactive* [13], University of Nice, 1/07/2015-1/09/2018, Manuel Serrano and Gérard Berry.

PhD in progress : Imane Fouad, Web tracking detection and measurement, 1/01/2018, Nataliia Bielova and Arnaud Legout

PhD in progress : Jayanth Krishnamurthy, Privacy policy enforcement in IoT applications, 12/09/2018, Nataliia Bielova and 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

Postdoc: Yoonseok Ko, Subsets of secure JavaScript, 1/10/2018-, Tamara Rezk

Postdoc: Minh Ngo, TSNI enforcement mechanisms, 1/01/2018-31/12/2018, Tamara Rezk

Postdoc: Francis Somé, IoT secure broadcasting, 1/11/2018-, Tamara Rezk

8.2.3. Juries

- Nataliia Bielova was a member of the PhD jury of Oleksii Starov, Stony Brook University.
- Nataliia Bielova was a member of the PhD jury of Daniel Schoepe, Chalmers University of Technology.
- Manuel Serrano was a member of the PhD jury of Remy El-Sibaie, Paris-Sorbonne University.
- Manuel Serrano was a member of the PhD jury of Pierre Talbot Ircam, Paris-Sorbonne University.

- Tamara Rezk was "rapporteur" for the PhD thesis of Nadim Kobeissi, ENS
- Tamara Rezk was "rapporteur" for the PhD thesis of Gurvan Cabon, Université de Rennes
- Tamara Rezk was a member of the Licenciate jury of Iulia Bastys, Chalmers University of Technology
- Tamara Rezk was a member of the jury "soutenance stage" of the CASPAR master of University of Nice Sophia Antipolis
- Tamara Rezk was a member of the jury for the ACM Student Research Competition of April 2018

8.3. Popularization

8.3.1. Internal or external Inria responsibilities

Tamara Rezk is member of the editorial board of Interstices and Blog Binaire Le Monde

8.3.2. Articles and contents

Tamara Rezk published the article "Est-ce que mon programme est bien protégé ?" in blog binaire Le Monde in February 2018. The article with some minor modifications was retaken by Interstices and published in December 2018. http://binaire.blog.lemonde.fr/2018/02/09/est-ce-que-mon-programme-est-bien-protege-contre-les-cyberattaques/.

Nataliia Bielova was interviewed by Sophie Casals, "Comment mieux protéger sa vie privée en naviguant sur internet? Les conseils d'une spécialiste" in Nice Matin, June 2018. https://www.nicematin.com/faits-de-societe/comment-mieux-proteger-sa-vie-privee-en-naviguant-sur-internet-les-conseils-dune-specialiste-239166

8.3.3. Education

8.3.3.1. Skini and the Fabrique à Musique

Skini is currently used with a class of secondary school in order to create a musical show in collaboration with the Conservatory of Nice and the CIRM (National Center for Music Creation). A group of 25 children, 12 year old, are creating together a story, and use the distributed sequencer of Skini to design basic musical patterns using tablets. The next step is to organize with them the orchestration of the piece which is coded in HipHop. The activation of the piece will be done in real time by the children using the tablet and the Skini plateform. This project is funded by SACEM (Société des auteurs, compositeurs et éditeurs de musique). The project will end in May 2019 with a public concert in the Conservatory of Nice.

8.3.3.2. MOOC Protection de la vie privée dans le monde numérique

Nataliia Bielova has participated to the MOOC "Protection de la vie privée dans le monde numérique" (Session 2) that was shooted in July 2018 under the guidance of Inria Learning Lab and was open to general public between 5 November 2018 and 7 January 2019, https://www.fun-mooc.fr/courses/course-v1:inria+41015+session02/about.

8.3.4. Interventions

- Nataliia Bielova held a stand at Portes ouvertes (Fête de la science) of Inria Sophia Antipolis explaining how to protect privacy on the Web, October 2018.
- Ilaria Castellani and Héloïse Maurel held the stand "Science au féminin" together with Carine Antico from CNRS at the Fête de la Science in Antibes Juan-les-Pins, October 2018.

8.3.5. Internal action

- Nataliia Bielova gave a talk at the PhD seminar special edition on "Tracking technologies and protection of your privacy on the Web", March 2018.
- Nataliia Bielova gave a talk at the Data Science meetup Nice on "How companies track you as you browse the web and how to protect yourself?", https://www.meetup.com/Data-Science-Meetup-Nice-Sophia-Antipolis/events/255546602/, October 2018.

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

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

- Robert de Simone organized the Scientific Program for the yearly Synchron seminar, held in November in Saint-Raphaël. He is also Steering Committee member of IEEE/ACM EmSoft a conference part of Embedded System Week.
- Eric Madelaine is chair of the steering committee of the Int. Symposium on Formal Aspects of Component Software (FACS: http://sevlab.postech.ac.kr/facs18/committees/)
- Frédéric Mallet was track co-chair for DATE 2018.
- Julien Deantoni was track co-chair for IEEE-RIVF (http://rivf2019.udn.vn/).

10.1.1.2. Member of the Organizing Committees

M-A. Peraldi-Frati and R. de Simone organized the Open Workshop Synchron 2018 in Saint-Raphaël.

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- M.A Peraldi-Frati is member of the IEEE-RIVF 2019 Program Committee.
- E. Madelaine is member of the PC of FACS'2018, VECoS'2018.
- R. de Simone is PC member for the conference MeMoCode, FDL, and EmSoft.
- Frédéric Mallet. Member of program committee for DATE'18, Euromicro DSD'18, FTSCS'18, FDL'18, TASE'18, Modelsward'18.
- Julien Deantoni is PC member RIVF'19, EXE'18, GEMOC'18, MDebug'18, DSD'18, MoMo'18.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Eric Madelaine is Guest Editor of the Science of Computer Programming special issue for selected papers of the FACS'2014 symposium.
- Frédéric Mallet. Managing Guest Editor for a special issue of Elsevier Science of Computer Programming (SCP).

10.1.3.2. Reviewer - Reviewing Activities

- Eric Madelaine is reviewer for the journals: Science of Computer Programming (SCP), and Journal of Logical and Algebraic Methods in Programming (JLAMP).
- Marie-Agnès Peraldi-Frati : ACM Transactions on CPS, Forte2018.
- Luigi Liquori. Journal reviewer : Fundamenta Informaticae. Conference TPC: NICS'18, ICCE'18
- Frédéric Mallet. Journal reviewer for IEEE Transactions on Computer Aided Design of Integrated Circuits (TCAD), ACM Transactions on Embedded Computing Systems (TECS), ACM Transactions on Design Automation of Electronic Systems (TODAES), Elsevier Computers In Industry.
- Julien Deantoni. Journal reviewer for Software and Systems Modeling (http://www.i3s.unice.fr/~deantoni/SoSyM-review-certificate-Julien-DeAntoni.pdf) and for Computer Languages, Systems & Structures.

10.1.4. Research Administration

- F. Mallet is Deputy Director of UMR I3S Laboratory and as such, member of the 'comité de direction', 'conseil de laboratoire', 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

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.

M.A Peraldi-Frati teaches Web security (20h), Security of connected objects (20h), IoT Infrastructure deployment (20 H) and Large scale plateform for IoT (20h) in a licence cursus dedicated to Internet of Objects, Infrastructure and Applications.

Licence : Luigi Liquori, Peer-to-peer systems, 32 eq TD, Université Côte d'Azur.

Winter School on Theoretical Foundations of Computer Science, 4-9 February 2019, Georgia. Luigi Liquori. Peer-to-peer and reklated systems, International Black Sea University and Shota Rustaveli National Science Foundation of Georgia.

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, 24h eq TD, Polytech'Nice.

Master: Julien Deantoni, Language Interpreter, 24h eq TD, Polytech'Nice.

10.2.2. Teaching Administration

- Sid Touati was the responsible of first year of computer science licentiate since 2011 till 2018.
- Sid Touati is a vice-director of the computer science department since 2017, in charge of the graduate students (licence).
- Frédéric Mallet is the coordinator of the International track of the Master of Computer Science since 2015.
- Frédéric Mallet is a member of the steering committee of the Graduate School DS4H (EUR DS4H).
- Master: Julien Deantoni, computer science internship management.

10.2.3. Supervision

- PhD in progress : Claude Stolze, A proof-functional type theory for intersection and union types, Université Côte d'Azur, end 2019, Luigi Liquori.
- PhD in progress : Carsten BRUNS, Performance analysis and optimisation of C++ applications, Université Côte d'Azur, 2021, Sid TOUATI.

- PhD in progress : Hui Zhao, Multiview System Integration for Cyber Physical Systems, Université Cote d'Azur, end 2019, Frédéric Mallet
- PhD in progress : Giovanni Liboni, Coordination of discrete (Cyber) Models, Université Cote d'Azur, end 2021, Frédéric Mallet, Julien DeAntoni

10.2.4. Juries

Robert de Simone was reviewer of the PhD thesis of Amaury Greillat (VERIMAG, Grenoble), and of the Habilitation thesis of Katell Morin-Allaury (TIMA, Grenoble).

M.A Peraldi-Frati : Examinator Thesis jury Slim Medimegh - CentraleSupélec University- Dec 2018.

Frédéric Mallet : Reviewer for the PhD thesis of NGuyen Van Hai - Université Paris Saclay - Central/Supélec, 27/09/2018

Frédéric Mallet : Reviewer for the PhD thesis of Martial Chabot - Université Grenoble Alpes - TIMA, 30/10/2018

LEMON Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Event Organisation

10.1.1.1. Member of Organizing Committee

Gwladys Toulemonde is chair of the organizing committee of the international conference METMA IX (June 2018, Montpellier).

10.1.2. Journal

10.1.2.1. Member of Editorial Board

Antoine Rousseau is member of DCDS-S editorial board

Gwladys Toulemonde is guest editor (with L. Bel, AgroParisTech) of the Special Issue entitled "Space-time modeling of rare events and environmental risks" which will be published in Spatial Statistics.

10.1.2.2. Reviewer - Reviewing Activities

Carole Delenne is a reviewer for Journal of Hydraulic Research, Water (2 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 (2 manuscripts/year)

10.1.3. 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).

10.1.4. Scientific Expertise

Antoine Rousseau is member of the scientific board of Fondation Blaise Pascal

Carole Delenne was reviewer for the STIC-AmSud Program

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

Gwladys Toulemonde is member of the scientific committee of Spatial Statistics 2019 (Sitges, Spain)

10.1.5. 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,

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*)

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*)

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*)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Three LEMON permanent members (out of four) 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. Carole Delenne is also teaching manager of the department EGC at Polytech. The teaching load is summarized in Table 1 .

Table 1. Teaching

Antoine	Teaching M1 level: 0 to 30 hrs/year
	Student supervision: 50 hrs/year
Carole	Teaching L1-M2 level: 200-250 hrs/year
	hydraulics, applied mathematics, informatics
	Student tutorship and supervision: 50-100 hrs/year
Gwladys	Teaching L3/M1/M2 level: 200-250 hrs/year
	mathematics, probability, statistics, data mining
	Student tutorship and supervision: 50-100 hrs/year
Vincent	Teaching L3/M1/M2 level: 290 hrs/year
	Student tutorship and supervision: 50-100 hrs/year

10.2.2. Supervision

Gwladys Toulemonde is responsible for student recruitment at the IG department (Polytech Montpellier).

Gwladys Toulemonde co-supervises a PhD thesis in an established collaboration with Sanofi and is also involved in two other industrial collaborations (BALEA, Twin Solutions)

Gwladys Toulemonde advises a post-doctoral fellow since october 2017 on spatio-temporal extreme processes to assess flood hazards (NUMEV funding until Oct 2018)

10.2.3. Juries

Antoine Rousseau was appointed internal member of a recruitment campaign at Inria (CR2 at Inria CRI-SAM)

10.3. Popularization

Antoine Rousseau is member of the editorial board of Interstices and the Binaire Blog in Le Monde.

10.3.1. Internal or external Inria responsibilities

Antoine Rousseau is member of "Bureau du Comité des Équipes-Projet" in the research center of Sophia-Antipolis Méditerranée.

10.3.2. Interventions

Antoine Rousseau has given lectures in the following events:

- Fête de la Science (Genopolys Montpellier) and Semaine des maths (Collège Les Fontanilles, Castelnaudary)
- FUTUR·E·S in La Villette (Paris) for a demo of Tsunamilab
- another Tsunamilab demo for Region Occitanie (November 30th, Port Barcarrès)
- Centre d'Alembert (Orsay-Saclay)
- public schools of Aubais (Gard) and Castelnaudary (Aude)

10.3.3. Internal action

- Antoine Rousseau gave a talk in the Café des Sciences at Inria Rocquencourt, March 20th.

10.3.4. Creation of media or tools for science outreach

- Antoine Rousseau has contributed to the development of Tsunamilab in collaboration with Inria Chile
- Antoine Rousseau is a co-administrator of the association Le Calendrier Mathématique

MARELLE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Organizing Committees

Yves Bertot is member of steering committee for the conferences ITP, CPP and UITP.

Yves Bertot organized the Coq Implementor's Workshop in May in Nice, France, where Cyril Cohen, Maxime Dénès, and Enrico Tassi also brought support to newcomers.

Laurence Rideau Organized a meeting of the ANR FastRelax project in June in Sophia Antipolis. There were presentations by Sophie Bernard, Yves Bertot, Cyril Cohen, Damien Rouhling, Laurent Théry during this meeting.

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

Benjamin Grégoire was a Program Committee member for CSF 2018 and JFLA 2019. Enrico Tassi was a Program Committee member for CPP 2019, ITP 2018, UITP 2018, F-IDE 2018. Laurent Théry was a Program Committee member for AISC, CPP 2019, ITP 2018, and UITP 2018. Yves Bertot was a Program Committee member for AISC, CICM, FMM, and UITP.

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

Laurent Théry was a reviewer for *Annals of Mathematics and Artificial Intelligence*, *Journal of Applied Logic*, and *Science of Computer Programming*. Cyril Cohen was a reviewer for *Journal of Automated Reasoning* and *Mathematical Structures in Computer Science*. Enrico Tassi was a reviewer for *ACM Transactions on Computational Logic* and *Journal of Automated Reasoning*. Yves Bertot was a reviewer for *Journal of Automated Reasoning*.

9.1.4. Invited Talks

Cyril Cohen gave an invited talk on formalizing robotics in January in Nijmegen, the Netherlands.

Cyril Cohen gave an invited talk on asymptotic reasoning in June in Pittsburgh, USA.

Cyril Cohen gave an invited talk at the workshop *Lean User Group* in November in Freiburg, Germany.

Benjamin Grégoire gave an invited talk at the "journées nationales du GDR sécurité" (national days of the CNRS research group on security) in May in Paris, France.

Benjamin Grégoire gave an invited tutorial at the CHES conference (Cryptographic Hardware and Embedded Systems) in September in Amsterdam, the Netherlands.

Enrico Tassi gave a four-hour tutorial at the EUTypes Summer School in August in Ohrid, Macedonia (https://sites.google.com/view/2018eutypesschool/home)

Enrico Tassi gave an invited talk at the ML workshop in September in Saint Louis, Missouri, USA on "ELPI: an extension language with binders and unification variables".

Yves Bertot gave an invited talk at the ICTAC conference in October in Stellenbosch, South Africa on "Formal Verification of a Geometry Algorithm: A Quest for Abstract Views and Symmetry in Coq Proofs". He also gave a half-day tutorial on Coq.

9.1.5. Leadership within the Scientific Community

We organized two one-week courses on the Coq system, both tagged as entry-level, on Coq and Coq and the Mathematical Components library.

9.1.6. Scientific Expertise

Yves Bertot was part of the review committee for the French *Haut Commissariat pour l'Évaluation de la Recherche et de l'Enseignement Supérieur* for the CNRS laboratory SAMOVAR in Evry, France.

9.1.7. Research Administration

- José Grimm is a member of the local committee for hygiene and work safety.
- Yves Bertot was a member of the "Bureau du comité des projets" until June.
- Benjamin Grégoire is a member of the committee on computer tool usage (CUMI) for the Sophia-Antipolis Méditerranée Inria center.
- Laurence Rideau was a member of the hiring committee for researchers in Sophia Antipolis.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Doctorat: Enrico Tassi organized an advanced school on Coq and the Mathematical Components library, where Laurence Rideau, Cyril Cohen, Laurent Théry, and Yves Bertot gave lectures and supervised laboratory sessions. This school took place in December and had about 20 attendants.

Licence: Sophie Bernard gave 54 hours of lectures on probabilities at University of Nice Sophia Antipolis.

Licence: Damien Rouhling taught about 60 hours at University Nice Sophia Antipolis: differential calculus, Fourier analysis, and C programming (First year students).

Master: Yves Bertot organized a school on Coq in January, Boris Djalal and Damien Rouhling supervised the lab sessions.

Master: Laurent Théry taught 3 hours on "introduction to computer verified proof" at Ecole des Mines de Paris,

Licence: Boris Djalal taught 4 hours of computer science for first year students in a "classe préparatoire aux grandes écoles".

Licence: Cécile Baritel-Ruet taught 30 hours of computer science for first year students at Université de Nice, and some lectures on computer science history.

Licence: Cyril Cohen prepares students for oral examination in a "classe préparatoire aux grandes écoles".

9.2.2. Supervision

- Yves Bertot and Cyril Cohen supervised Boris Djalal, whose doctoral thesis was defended on December 3rd.
- Yves Bertot and Cyril Cohen supervise the doctoral thesis of Damien rouhling.
- 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.

9.2.3. Juries

Enrico Tassi was a member of the Thesis jury for Andrea Gabrielli, in October at the University of Florence, Italy.

Yves Bertot was a member of the Thesis jury for Guillaume Davy, in December at the University of Toulouse and the Institut Supérieur d'Aéronautique et de l'Espace, France.

9.3. Popularization

9.3.1. Interventions

Cyril Cohen presented the work of the Marelle team at a presentation for students coming from Mediterranean regions: Meddays.

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

6. Dissemination

6.1. Promoting Scientific Activities

6.1.1. Scientific Events Organisation

6.1.1.1. Member of the Organizing Committees

Olivier Faugeras and Romain Veltz were on the Advisory Board of the 4th International Conference on Mathematical Neuroscience, held in Antibes Juan les Pins (France), June 11 - 13, 2018.

6.1.2. Scientific Events Selection

6.1.2.1. Member of the Conference Program Committees

Mathieu Desroches was on the Program Committee of the 4th International Conference on Mathematical Neuroscience, held in Antibes Juan les Pins (France), June 11 - 13, 2018.

Mathieu Desroches was on the Scientific Committe of the 2nd International workshop in Neurodynamics (Ndy'18), held in Castro-Urdiales (Spain), September 26-29, 2018.

6.1.3. Journal

6.1.3.1. Member of the Editorial Boards

Olivier Faugeras is the co-editor in chief of the open access Journal of Mathematical Neuroscience. This journal has obtained in 2018 an Impact Factor of 2.4.

6.1.3.2. 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, 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.

6.1.4. Invited Talks

Pascal Chossat, "Stability of Simple and Pseudo Simple Heteroclinic Cycles in $\mathbb{R}^4$", Perspectives in Nonlinear Science Workshop, Cargese (France), March 2018.

Pascal Chossat, "Computational aspects of equivariant bifurcation theory", Colloque *Symmetry and Computation*, CIRM (France), April 2018.

Pascal Chossat, "Geometry in neurosciences: the example of the visual cortex" (plenary talk), *Systèmes dynamiques et systèmes complexes - Une conférence pour célébrer les 60 ans de Jean-Marc Gambaudo*, Nice (France), Juin 2018.

Pascal Chossat, "Perception of images by the visual cortex: geometry in neuroscience" (plenary talk), *VI Iberoamerican meeting Geometry, Mechanics and Control*, Guanajuato (Mexico), August 2018.

Pascal Chossat, "Transitions de phase dans le plan hyperbolique, application à la détection des textures par le cortex visuel primaire", Colloque *Géométrie et représentation de la couleur*, UPMC, November 2018.

Mathieu Desroches, "Canards and spike-adding in neural bursters", MURPHYS-HSFS-2018 meeting, CRM, Barcelona (Spain), May 2018.

Mathieu Desroches, "Three-Timescale Dynamics: Canards and Spike Adding", New Trends in Mathematical Biology, CRM, Barcelona (Spain), June 2018.

Olivier Faugeras, "Predicting neuronal correlations in large size networks based on meanfield analysis", Workshop *Mean-field Approaches to the Dynamics of Neuronal Networks*, EITN, Paris (France), January 2018.

Olivier Faugeras, "Neural networks do not become asynchronous in the large size limit when synaptic weights are correlated: there is no propagation of chaos", Worshop *InSpire – New Insights on Complex Neural Dynamics*, , Cergy (France), June 2018.

Olivier Faugeras, "Neural networks do not become asynchronous in the large size limit: there is no propagation of chaos", ICMNS 2018, Antibes (France), June 2018.

Elif Köksal Ersöz, "Anticipation via canards", MURPHYS-HSFS-2018 meeting, CRM, Barcelona (Spain), May 2018.

Elif Köksal Ersöz, "Anticipation via canards in excitable systems", XXIII National Conference on Statistical Physics and Complex Systems, Parma (Italy), June 2018.

Elif Köksal Ersöz, "Canard mediated mixed-mode bursting oscillations in a rate model", European Conference on Mathematical and Theoretical Biology (ECMTB 2018), Lisbonne (Portugal), July 2018.

Elif Köksal Ersöz, "Canard mediated mixed-mode bursting oscillations in a rate model", 2nd International workshop in Neurodynamics (Ndy'18), Castro-Urdiales (Spain), September 2018.

Martin Krupa, "Heteroclinic chains in a model of associative memory", Systèmes dynamiques et systèmes complexes - Une conférence pour célébrer les 60 ans de Jean-Marc Gambaudo, Nice (France), June 2018.

Romain Veltz, "On a toy network of neurons interacting through nonlinear dendritic compartments", ICMNS 2018, invited talk, June 2018.

Romain Veltz, "On a toy network of neurons interacting through nonlinear dendritic compartments", Mean-field approaches to the dynamics of neuronal networks, EITN, 2018.

Romain Veltz, "On a toy network of neurons interacting through nonlinear dendritic compartments", Systèmes dynamiques et systèmes complexes - Une conférence pour célébrer les 60 ans de Jean-Marc Gambaudo, Nice (France), June 2018.

Romain Veltz, "Models of neurons interacting through nonlinear dendritic compartments", Séminaire de Probabilités et Statistique, LJAD, Université de Nice Sophia Antipolis, October 2018.

6.1.5. Scientific Expertise

Fabien Campillo was member of the local committee in charge of the scientific selection of visiting scientists (Comité NICE)

Fabien Campillo was member of the HCERES visiting committee for the evaluation of the INRA Research Unit MAIAGE.

Fabien Campillo was member of the visiting committee of the LIRIMA International Laboratory.

Mathieu Desroches was on the Advisory Board of the Complex Systems Academy of the UCA[JEDI] Idex.

Olivier Faugeras made a presentation in front of the CCNE (Comité Consultatif National d'Ethique) reporting on the work made by the group "éthique et IA" that he was the president of at the *Académie des Sciences de Paris* in preparation of their revision of the law on bioethics.

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 2018, Jean Ponce, Stéphane Mallat and Francis Bach. This study group has also produced a report for the 2019 G7 meeting.

6.2. Teaching - Supervision - Juries

6.2.1. Teaching

Chalk-learning

Master 2 MVA/UPMC: Romain Veltz, Mathematical Methods for Neurosciences, 20 hours, Paris, France.

Master 1 BIM/UPMC: Mathieu Desroches, Modèles Mathématiques et Computationnels en Neuroscience (Lectures and example classes), 20 hours, Paris, France.

Master 1 BIM/UPMC: Elif Köksal Ersöz, Modèles Mathématiques et Computationnels en Neuroscience (Labs), 10 hours, Paris, France.

Mini-course (Master's level), Basque Center for Applied Mathematics: Mathieu Desroches (together with Serafim Rodrigues), Introduction to mathematical neuroscience: neuronal models and their bifurcations, 10 hours, Bilbao, Spain.

6.2.2. Supervision

PhD in progress: Axel Dolcemascolo, "All optical neuromimetic devices", started in January 2016, co-supervised by Romain Veltz and Stéphane Barland (INLN). Successfully defended on 14 December 2018.

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: 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: Quentin Cormier, "Biological spiking neural networks", started in September 2017, 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).

6.2.3. Juries

Mathieu Desroches was president of the Jury of the PhD of Dora Karvouniari (Inria Biovision Team) entitled "Mathematical modeling of retinal waves", Inria Sophia Antipolis, 15 March 2018.

Pascal Chossat was jury member for the HDR of Philippe Beltrame, Université d'Avignon, 30 November 2018.

Romain Veltz was Examiner for A. Dolcemascolo's PhD thesis defence entitled "Semiconductor lasers to model and control cells and excitable networks", which took place on 14 December 2018.

6.3. Popularization

6.3.1. Interventions

National events: Romain Veltz participated at the conference "Fête de la Science".

6.3.2. Internal action

Romain Veltz gave a talk at "Café des sciences" about "Vers un modèle de synapse excitatrice"

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

Members of the team have been involved in creating a series of conferences on "The cut locus: A bridge over differential geometry, optimal control, and transport", together with Japanese colleagues, see motivations in Section 3.2 . The first one took place in Bangkok, Thailand, in 2016 and the second one was organized this year, September 3-6 in Sapporo, Japan. There are plans to organise the third conference in Nice in 2020. J.-B. Caillau and L. Rifford were members of the scientific and organising committee for this second edition.

J.-B. Caillau was member of the Scientific committee of the PGMO days 2018, hosted by EDF labs in Saclay, and supported by the Fondation Mathématique Jacques Hadamard (FMJH). The conference gathered about 280 scientists working in optimization and data science. Together with H. Zidani (ENSTA Paristech), J.-B. Caillau organized two sessions of invited talks on "Optimal control and applications" during the conference.

J.-B. Caillau is chair (together with D. Auroux, UCA) of the 19th French-German-Swiss conference on Optimization that will take place in Nice in September 2019. This conference is the main European biennial event in optimization in the broad sense.

10.1.2. Journal

B. Bonnard is a member of the editorial board of the *Pacific Journal of Mathematics for Industry*.

10.1.3. Invited Talks

B. Bonnard, J.-B. Pomet and J. Rouot gave three invited talks at the conference Dynamics, Control, and Geometry, Banach center, Warsaw (Poland): "Sub-Riemannian geometry and the Copepod Micro–swimmer", "Geometric and numerical methods in optimal control for the time minimal saturation of a pair of spins", "Dynamic equivalence and flatness of control systems: some results and open questions".

Olivier Cots gave an invited talk at PGMO Days. Olivier Cots, Bernard Bonnard, Jérémy Rouot and Thibaut Verron, "Geometric and numerical methods for the saturation problem in Magnetic Resonance Imaging".

J.-B. Pomet gave an invited talk at the 2nd conference on "The cut locus: A bridge over differential geometry, optimal control, and transport", September 3-6, Sapporo, Japan.

P. Lissy gave two seminars at Fudan University, Shanghai, China (February).

P. Lissy gave two plenary talks at *PICOF conference*, Beyrouth, Libanon (June) and at *Workshop on Microlocal analysis, numerical analysis and kinetic equations*, Madrid, Spain (February).

J.-B. Caillau gave the following invited talks:

- "Optimal control of slow-fast mechanical systems" (in January), *UCA Complex days*, Nice
- "Smooth and broken Hamiltonian curves in optimal control" (in February), *Recent advances in Hamiltonian dynamics and symplectic topology*, Padova

L. Dell'Elce gave the following seminars:

22/2/2018   *Robust trajectory design using invariant manifolds. Application to the asteroid (65803) Didymos* at Astrogeo, Sophia Antipolis, France.

7/5/2018   *Two-phase averaging of optimal control systems with application to the Eath-Moon transfer* at JAXA, Sagamihara, Japan.

9/7/2018   *Two-phase averaging of optimal control systems* at Technion, Haifa, Israel.

10.1.4. Leadership within the Scientific Community

J.-B. Caillau is member of the following committees:

- Conseil scientifique du GdR Calcul
- Conseil scientifique de l'Institut de Mécanique Céleste et de Calcul des Éphémérides (Observatoire de Paris)
- Conseil scientifique PGMO, Fondation Mathématique Jacques Hadamard
- Jury du prix de thèse PGMO

J.-B. Caillau, L. Dell'Elce and J.-B. Pomet are members of the Centre Spatial Universitaire UCA (projet CubeSat).

10.1.5. Scientific Expertise

J.-B. Caillau and L. Giraldi were hired for a one day expertise for Smart'n Go (startup working in marine routing).

10.1.6. Research Administration

J.-B. Caillau is

- co-organizer of the Séminaire de géométrie hamiltonienne of Sorbonne Université
- member of the Conseil Scientifique 3IA (project on AI supported by Nice-Sophia Antipolis)

Laetitia Giraldi is

- a member of CSD (*Comité du Suivi Doctoral*) at Inria Sophia-Antipolis,
- a redactor of the meeting reports of the *Comité des Équipes-Projets* at Inria Sophia-Antipolis.

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).

Ludovic Rifford is the Executive Director of the CIMPA (Centre International de Mathématiques Pures et Appliquées).

Pierre Lissy is elected member of the "CCR" of the CEREMADE (committee in charge of the recruitment at Dauphine, notably for ATER, months of invited and composition of hiring committees).

Pierre Lissy is member of the team of the website "Opération Postes".

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

B. Bonnard taught 220 hours at undergraduate level (ESIREM engineering school)

J.-B. Caillau taught 200 hours at L3, M1 and M2 level (Polytech Nice Sophia, Universié Nice Sophia).

L. Giraldi taught 10 hours in the Master 2 recherche, Cell Physics (Université de Strasbourg). She also teaches in Classe préparatoire aux grandes écoles d'ingénieurs (Centre International de Valbonne) as a interrogatrice in MP* and MPSI (4 hours per week).

P. Lissy gave a six hour lecture on "Spectral Geometry" at the CIMPA spring school "PDEs and geometry" (May 2018, Jijel, Algeria).

J.-B. Caillau is director of the Applied Math. & Modelling department of Polytech Nice Sophia.

J.-B. Caillau and L. Giraldi are members of the jury of Agrégation externe de mathématiques.

P. Lissy was coordinator of a work group on the recast of the Teaching in Analysis for the initial education in Maths at Université Paris-Dauphine.

10.2.2. Supervision

PhD : Michaël Orieux, "Quelques propriétés et applications du contrôle en temps minimum" [1], Université Paris Dauphine, November 27, 2018, co-supervised by J.-B. Caillau and J. Féjoz (Univ. Paris-Dauphine).

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 magneto-elastic micro-robot from theory to experiment", started October, 2017, co-supervised by L. Giraldi, J.-B. Pomet and Stephane Régnier (Sorbonne Université).

PhD in progress : Clément Moreau, "Contrôlabilité de systèmes en dimension finie ou infinie issus du vivant", started September, 2017, co-supervised by L. Giraldi, P. Lissy (Univ. Paris-Dauphine) and J.-B. Pomet.

PhD in progress : Agustin Yabo, "Control of biological processes", started September, 2018, co-supervised by J.-B. Pomet and J.-L. Gouzé (Biocore team).

PhD in progress : Luca Berti, "Modeling magneto-elastic micro-robot using PDE", started October, 2018, co-supervised by L. Giraldi and C. Prud'Homme (Université de Strasbourg).

10.2.3. Juries

B. Bonnard was a reviewer of Sofya Maslovskaya's PhD (ENSTA ParisTech), and he sat in the jury for Toufik Bakir's Habilitation defense (Univ. de Bourgogne Franche Comté).

J.-B. Caillau was a reviewer of Ivan Beschastnyi PhD thesis (SISSA, September 2018), Francesca Chittaro Habilitation (Univ. Toulon, December 2018), Antoine Olivier PhD thesis (Sorbonne Université, October 2018), Cédric Rommel PhD thesis (École Polytechnique, October 2018), and he sat in the jurys of Clément Gazzino PhD thesis (Univ. Toulouse, January 2018), Ricardo Bonalli PhD thesis (Sorbonne Université, July 2018).

J.-B. Pomet was a reviewer of Riccardo Bonalli's PhD (Univ. Paris Sorbonne), and he sat in the jury for Sofya Maslovskaya's PhD (ENSTA ParisTech) and for Toufik Bakir's Habilitation defense (Univ. de Bourgogne Franche Conté).

L. Rifford was a reviewer of Vincenzo Basco's PhD (Sorbonne Université) and sat in the jury for Nicolas Juillet's Habilitation à Diriger des Recherches (Université de Strasbourg).

Pierre Lissy has been a member of hiring committees for "Maître de Conférences" positions at Université Paris-Dauphine (2 positions) and Université Sorbonne Université (1 position).

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Clément Moreau is a member of the team « équipe actualités » of Images des Mathématiques since October, 2018.

J.-B. Caillau is member of the MASTIC initiative at Inria Sophia (Médiation et animation scientifiques Inria) and delivers regular talks in high school or college.

10.3.2. Articles and contents

Clément Moreau participated in the radio show « La méthode scientifique » on March 7, 2018.

Clément Moreau participated in the national competition « Ma thèse en 180 secondes ».

10.3.3. Education

Lamberto Dell'Elce is involved in the PoBot challenge promoted by MEDITES. Specifically he supervises a class in the College Emile Roux in Cannes.

10.3.4. Interventions

Clément Moreau participated in the « journées portes ouvertes » at Inria Sophia Antipolis in the framework of the 2018 « Fête de la Science », October 7, 2018, and in a scientific discovery workshop for secondary school students at the concrete Art Museum, Mouans-Sartoux, October 11, 2018.

Lamberto Dell'Elce gave the talk "CubeSats: Concevoir et Realiser un Satellite à l'Université" at the *Cafe In* meeting held at Inria Sophia on June 6, 2018, and for high scholl students during the stage MathC2+ in June, 2018.

<p align="center" style="color:red">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

Eric Debreuve was a member of the Program Committee of ACIVS 2018 (Advanced Concepts for Intelligent Vision Systems) and Reconnaissance des Formes, Image, Apprentissage (RFIAP).

9.1.1.2. Reviewer

Laure Blanc-Féraud was a reviewer for the conferences IEEE ICIP and ICASSP.

Eric Debreuve was a reviewer for the conferences IEEE International Symposium on Biomedical Imaging (ISBI) and IEEE International Conference on Image Processing (ICIP).

Xavier Descombes was a reviewer for ISBI18, ICASSP18 and ICIP18.

Grégoire Malandain was a reviewer for the conferences EMBS, ISBI and MICCAI.

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.

Xavier Descombes is Associated Editor for the journal Digital Signal Processing.

9.1.2.2. Reviewer - Reviewing Activities

Laure Blanc-Féraud was a reviewer for the Journal of Optimization Theory and Applications.

Eric Debreuve was a reviewer for the journals Digital Signal Processing (Elsevier) and Pattern Recognition (Elsevier).

Xavier Descombes was reviewer for the journals IEEE TMI and Digital Signal Processing.

Grégoire Malandain was reviewer for the journal IEEE TMI.

9.1.3. Invited Talks

Florence Besse gave a talk "Modeling Cell fate" at the Jacques Monod Conférence, November 2018.

Laure Blanc-Féraud was invited to the Workshop on Computational Methods for Inverse Problems in Imaging, Como Italy, 16-18 July 2018, and to the OSA Imaging and Applied Optics Congress, Orlando, USA, 25-28 June 2018.

Xavier Descombes was invited to give a talk at Tlemcen Univeristy during the Biomedical Doctoral School day. He was invited to give a talk at the SIAM conference on Imaging Science in Bologna. He was also a speaker during the C@UCA days in Fréjus and during Modelife days in Nice, workshops organized within the UCA Jedi Idex.

9.1.4. Leadership within the Scientific Community

Laure Blanc-Féraud is the directrice of the GdR 720 ISIS of CNRS (see website gdrisis.fr).

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 was president of the HCERES expert committee visit of the LTCI Lab (4-6 Dec.). She is a member of the ANR scientific evaluation committee ASTRID. She was part of the selection committee of section 61 of CNU for a professor position in Paris-Est University. She was expert for the CPER Numeric of Poitiers. She was member of the Commission d'admission CRCN of CNRS INS2I. Laure Blanc-Féraud was expert for the Italian Ministery of Research (MUIR) and for the FNRS (Belgium).

Xavier Descombes is an expert for the DRRT (Paca, Ile de France, Bretagne). He is member of the committee "Mathématiques et Sciences du Numérique pour la santé et la biologie" of ANR. He was in the HCERES committee to evaluate MAP5 laboratory.

9.1.6. Research Administration

Xavier Descombes is member of the "comité des projets" of Inria CRISAM. He is a member of the Comité Permanent des Ressources Humaines (CPRH), UNS, section 61.

Eric Debreuve is a member of the Comité Permanent des Ressources Humaines (CPRH), UNS, section 61.

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, 12h, L1, Polytech Nice Sophia, France

Master: Arne Bechensteen, Traitement Numérique des Images, 10h, M2, Polytech Nice Sophia, France

Master: Florence Besse, genetic tools for the study of neuronal networks, 4h, Université Côte d'Azur, France.

Master: Florence Besse, RNA localization and neuronal morphology, 4h, Université Côte d'Azur, France.

Master: Laure Blanc-Féraud, management of the module Traitements numériques des images (24h), teaching 5h CM.

Master : Eric Debreuve, scientific image processing, 9h EqTD, master SVS, Université Côte d'Azur, France

Master/Engineer : Debreuve, data mining, 27h EqTD, M2/Engineer 5, 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 VIM, 12h 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, 6h Eq. TD Niveau M2, Université Côte d'Azur.

Master : Anca Grapa, Traitement d'images, master GBM, 12h Eq. TD, Niveau M1, Université Côte d'Azur, France.

Master : Anca Grapa, Compression, Analysis and Visualization of Multimedia Content, master SSTIM (GMD), Niveau M2, 14h Eq. TD, PolyTech Nice Sophia, France.

9.2.2. Supervision

PhD in progress: Arne Bechensteen, TIRF-MA and super-resolution by sparse estimation method, 2 October 2017, Laure Blanc-Féraud, Gilles Aubert, Sébastien Schaub.

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: Emmanuelle Poulain, Fluoroscopy/CTA dynamic registration, 1st february 2016, Grégoire Malandain.

9.2.3. Internships

Baptiste Pouthier, Hierarchical deep learning for zooplankton image classification, Polytech Nice-Sophia Antipolis, UNS/UCA - MAM4, Eric Debreuve (sup.).

Simon Bahadoran, Deep learning for PALM superresolution in fluorescence microscopy. Supervisors: Laure Blanc-Féraud, Eric Debreuve.

Cédric Girard Riboulleau, Morphological tracking of organoids for the prostate cancer, Master BIM, Université Côte D'Azur, Xavier Descombes (sup.).

Guillaume Lavisse, Detection, classification and characterization of mitochondrial networks: application to Alzheimer desease and cancer, Master BIM, Université Côte D'Azur, Xavier Descombes (sup.).

Raphael Pages, Quantitative analyse of vesicles transport within the Left/Right organizer in the zebrafish, Master MAPI3, Université Paul Sabatier Toulouse, Xavier Descombes (sup.).

9.2.4. Juries

Laure Blanc-Féraud participated to the PhD thesis committees of Clara Barbanson (Télécom Paris-Tech & ONERA) as member, Quentin Denoyelle (Ceremade, Dauphine University) as president, William Meiniel (Pasteur Institute) as president, and to the HDR jury of Nabil El Korso (Paris Nanterre university) as member.

Xavier Descombes participated to the PhD committes of Agustina Razetti (Morpheme) as supervisor, Tran Thi Nhu Hoa (IPAL, Singapore and Sorbonne University), Amine Benomar (Tlemcen University, Algeria) and Jessica Sodjo (Bordeaux University) as a reviewer and Jean-Dominique Favreau (Titane, Inria) as an examinator. He was reviewer in the HDR juries of Sylvain Faisan (Strasbourg University) and Adel Hafiane (Orléans University).

Grégoire Malandain participated as reviewer to the PhD thesis committee of Ketan Bacchuwar (Paris Est univ.), Marc Filippi (Grenoble Alpes univ.), Julie Robic (Paris Est univ.), as member to the PhD thesis committee of Bertha Mayela Toledo Acosta (Rennes I univ.), and as reviewer to the HDR thesis committee of Antoine Vacavant (Clermont Auvergne univ.).

9.3. Popularization

9.3.1. Interventions

The Morpheme team took part in "La fête de la Science" both at Inria and during the "Village de la Science" in Juan-Les-Pins. Sarah Laroui, Somia Rahnmoun and Arne Bechensteen were holding a stand in these events.

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 CLIPhTON (advanCed numericaL modelIng for multiscale and multiphysics nanoPhoTONics) network that took place at Humboldt-Universität zu Berlin, Berlin, Germany, July 12-13, 2018.

9.1.2. Invited Talks

Claire Scheid, "A Discontinuous Galerkin Time-Domain framework for nanoplasmonics", Topical Workshop "Computational Aspects of Time Dependent Electromagnetic Wave Problems in Complex Materials", ICERM, Brown University, Providence, USA, June 25-29, 2018

Stéphane Lanteri, "Discontinuous Galerkin solvers for the numerical modeling of nanoscale light-matter interactions", MATHIAS 2018 - Computational Science Engineering & Data Science by TOTAL, Paris, October 22-24, 2018

Stéphane Lanteri, "Rigorous modeling of light absorption in nanostructured materials using a parallel high order finite element time-domain technique", Research Center for Advanced Science and Technology, The University of Tokyo, Japan, July, 30 2018

Stéphane Lanteri, "An upscaled DGTD method for time-domain electromagnetics", Special Session "Multiscale and multiphysics computation and applications", Progress In Electromagnetics Research Symposium - PIERS 2018, Toyama, Japan, August 1-4, 2018

9.1.3. Scientific Expertise

Stéphane Lanteri is a member of the Scientific Committee of CERFACS.

9.1.4. Research Administration

Stéphane Lanteri is a member of the Project-team Committee's Bureau of the Inria Sophia Antipolis-Méditerranée research center.

Stéphane Lanteri is a member of the Sciences Fondamentales et Appliquées Doctoral School Committee (until December 2018).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Stéphane Descombes, *Scientific computing*, M1, 36 h, Université Côte d'Azur.

Stéphane Descombes, *Principal components analysis*, M2, 30 h, Université Côte d'Azur.

Stéphane Lanteri, *High performance scientific computing*, MAM5, 24 h, Polytech Nice Sophia.

Claire Scheid, *Analyse Hibertienne et analyse de Fourier, Practical works*, Master 1 MPA, 36h, Université Côte d'Azur.

Claire Scheid, *Option Math 2*, Licence 1, 20h, Université Côte d'Azur.

Claire Scheid, *Méthodes numériques en EDP, Lectures and practical works*, Master 1 MPA and IM, 63h, Université Côte d'Azur.

Claire Scheid, *Option Modélisation, Lectures and practical works*, Master 2 Agrégation, 48h, Université Côte d'Azur.

Claire Scheid, *Analyse, Lecture and practical works*, Master 2 Agrégation, 27h, Université Côte d'Azur.

Claire Scheid, *EDP et Différences Finies, Lectures and practical works*, Master 1 MPA and IM, 72h, Université Côte d'Azur.

9.2.2. Supervision

PhD in progress: Alexis Gobé, *Multiscale hybrid-mixed methods for time-domain nanophotonics*, November 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 defened in September 2018: Nikolai Schmitt, *High-order simulation and calibration strategies for spatially dispersive metals in nanophotonics*, Stéphane Lanteri and Claire Scheid.

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

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 6th Intl. Conf. on Wireless Networks and Mobile Communications (WINCOM'18), Marrakesh, Morocco, 16-19 October 2018;
- Eitan Altman is 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;
- Eitan Altman is a steering committee member of the
    - 4th Intl. Symposium on Ubiquitous Networking (UNET 2018), Hammamet, Tunisia, 2-5 May 2018;
    - 9th EAI Intl. Conf. on Game Theory for Networks (GAMENETS 2019), Paris, France, 25-26 April 2019;
- Dimitra Politaki was the general chair of the workshop "Monde des mathematiques industrielles (MOMI)," Inria Sophia Antipolis Méditerranée, 26-27 February 2018.

10.1.1.2. Member of the Organizing Committees

- G. Neglia is publicity co-chair of the 20th Intl. Symposium on Mobile Ad Hoc Networking and Computing (ACM Mobihoc, Catania, Italy, 2019).

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

- Eitan Altman was TPC co-chair of ITC 30 (Vienna, Austria, Sept. 2018);

10.1.2.2. Member of the Conference Program Committees

- ACM Sigmetrics / IFIP Performance 2019 (Phoenix, Arizona, USA) (S. Alouf, K. Avrachenkov)
- 19th Conf. of the Société Française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF 2018, Lorient, France) (A. Jean-Marie)
- 9th EAI Intl. Conf. on Sensor Systems and Software (S-CUBE 2018, Chengdu, China) (E. Altman)
- 15th European Performance Engineering Workshop (EPEW 2018, Paris, France) (A. Jean-Marie)
- IEEE Intl. Conf. on Computer Communications (INFOCOM 2019, Paris, France) (G. Neglia)
- 26th IEEE Intl. Conf. on Network Protocols (ICNP 2018, Cambridge, UK) (K. Avrachenkov)
- 3rd Intl. Conf. on Pervasive and Embedded Computing (PEC 2018) (K. Avrachenkov)
- 6th Intl. Conf. on Wireless Networks and Mobile Communications (WINCOM'18, Marrakesh, Morocco) (E. Altman)
- European Conf. on Queueing Theory (ECQT 2018, Jerusalem, Israel) (K. Avrachenkov)
- 9th Intl. Conf. on Network Games, Control and Optimization (NETGCOOP 2018, New York, USA) (K. Avrachenkov)
- 18th Intl. Symposium on Dynamic Games and Applications (ISDG 2018, Grenoble, France) (E. Altman)

- 2018 Intl. Workshop on Resource Allocation, Cooperation and Competition in Wireless Networks (RAWNET, Shangai, China, 2018) (K. Avrachenkov, G. Neglia)
- Workshop on AI in Networks (WAIN, Toulouse, France, 2018) (G. Neglia)
- 15th Workshop on Algorithms and Models for the Web Graph (WAW 2018, Moscow, Russia) (K. Avrachenkov)
- 20th Workshop on MAthematical performance Modeling and Analysis (MAMA 2018, Irvine, USA) (A. Jean-Marie)
- 2018 Intl. Workshop on Content Caching and Delivery in Wireless Networks (CCDWN 2018, Shanghai, China) (K. Avrachenkov)
- Workshop Technologies for the Wireless Edge (EdgeTech 2018) (K. Avrachenkov)

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- *Elsevier Computer Communications (COMCOM)* (G. Neglia);
- *Elsevier International Journal of Performance Evaluation* (K. Avrachenkov);
- *ACM Transactions on Modeling and Performance Evaluation of Computing Systems (ACM ToMPECS)* (K. Avrachenkov);
- *Wiley Transactions on Emerging Telecommunications Technologies (ETT)* (S. Alouf);
- *IEEE JSAC* Special issue on Caching for Communication Systems and Networks (S. Alouf, G. Neglia);

10.1.3.2. Reviewer - Reviewing Activities

- *ACM Transactions on Modeling and Performance Evaluation of Computing Systems* (ACM ToMPECS) (G. Neglia)
- *European Journal of Operational Research* (A. Jean-Marie)
- *IEEE Networking Letters* (G. Neglia)
- *EURASIP Journal on Wireless Communications and Networking* (G. Neglia)
- *Journal of Economic Dynamics and Control* (A. Jean-Marie)
- *IEEE Transactions on Parallel and Distributed Systems* (G. Neglia)
- *IEEE Transactions on Signal and Information Processing over Networks* (G. Neglia)
- *IEEE/ACM Transactions on Networking* (G. Neglia)
- *Performance Evaluation* (PEVA) (S. Alouf)
- *Probability in the Engineering and Informational Sciences* (A. Jean-Marie)

10.1.4. Invited Talks

- E. Altman gave a keynote lecture on "Game Theoretic Models for Routing Over Wireless Links " at the 6th Intl. Conf. on Wireless Networks and Mobile Communications (WINCOM'18), October 16-19, Marrakesh, Morocco.
- K. Avrachenkov gave an invited talk on "Analysis of relaxation time in random walk with jumps" at the Intl. Conf. on Trends and Perspectives in Linear Statistical Inference (LinStat'2018, 19-25 August) in Bedlewo, Poland.
- K. Avrachenkov gave an invited talk on "Singularly perturbed linear programs and their application to MDP" at Univ. of Twente, September 20, Enschede, The Netherlands.
- G. Neglia gave an invited talk on "Implicit Coordination of Caches in Small Cell Networks under Unknown Popularity Profiles" at the workshop Technologies for the Wireless Edge (EdgeTech) EdgeTech of the 24th Annual Intl. Conf. on Mobile Computing and Networking (ACM MobiCom 2018), November 2, New Delhi, India.

- G. Neglia gave an invited talk on "Transient and Slim versus Recurrent and Fat: Random Walks and the Trees they Grow" at the UCA workshop on Social Interactions and Complex Dynamics, November 29-30, Nice, France.

10.1.5. Leadership within the Scientific Community

- E. Altman is a fellow member of IEEE (Class of 2010).
- E. Altman and A. Jean-Marie are (elected) members of IFIP WG 7.3 on "Computer System Modeling".
- E. Altman is member of WG 6.3 of IFIP on Performance of Communication Systems.

10.1.6. Research Administration

S. Alouf
  – is member of the scientific committee of the joint laboratory Inria-Alstom since May 2014;
  – 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 committee for Labex UCN@Sophia;
  – is a member of scientific and pedagogical committee for the graduate school of UCA DS4H.

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 a member of the Steering Committee of the GDR RO, a national research initiative on Operations Research sponsored by the Cnrs;
  – 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;
  – is member of the scientific animation committee for the IDEX UCA[JEDI] research program "Social Interactions and Complex Dynamics" since 2017.

D. Politaki was one of the organizers of the fortnightly PhD Seminars of Inria Sophia Antipolis Méditerranée until September 2018.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence :

> G. Neglia, "Probability", 60H, Undergraduate Water Engineering degree (L3), Univ. of Nice Sophia Antipolis (UNS), France.

Master :

> A. Jean-Marie, "Performance Evaluation of Networks", 15.75H, M2 IFI Ubinet, UNS, France.

> G. Neglia, "Distributed Optimization and Games", 31.5H, M2 IFI Ubinet, UNS, France.

> G. Neglia, "Performance Evaluation of Networks", 15.75H, M2 IFI Ubinet, UNS, France.

> G. Neglia, responsible for the "Winter School on Complex Networks", 22.5H, M1 Computer Science, UNS, France.

Doctorat:

> A. Jean-Marie, "Advanced Markov Modeling", 18H, Univ. of Montpellier, France.

10.2.2. Supervision

PhD defended:

> Said Boularouk, "Helping space apprehension by visually impaired people", UAPV, 5 Dec. 2018, advisors: Eitan Altman and Didier Josselin.

PhD in progress :

> Zaid Allybokus, "Scalable Online Algorithms for SDN Controllers", 1 July 2016, advisors: Konstantin Avrachenkov and Lorenzo Maggi (Huawei).

> Abhishek Bose, "Adaptive crawling with machine learning techniques", 1 June 2018, advisor: Konstantin Avrachenkov.

> Mandar Datar, "Singular perturbation approach for machine learning in multiobjective optimisation", 1 May 2018, advisor: Eitan Altman.

> Maximilien Dreveton, "Statistical Physics Methods for Distributed Machine Learning", 1 Oct. 2018, advisor: Konstantin Avrachenkov.

> Guilherme Iecker Ricardo, "Caching for wireless networks", 1 Sept. 2018, advisors: Giovanni Neglia and Pietro Elia (EURECOM).

> Marie Masson, "Fonctionnalités auto-organisantes dans le réseau d'accès radio 5G virtuels", 1 Dec. 2017, advisors: Eitan Altman and Zwi Altman (Orange).

> Dimitra Politaki, "Greening data center", 1 February 2016, advisors: Sara Alouf and Fabien Hermenier (UNS).

10.2.3. Juries

NEO members participated in the Ph.D. committees of (in alphabetical order):

- Hafiz Ali, "Random Matrix Theory and Large Dimensional graphs", CentraleSupelec, 24 September (K. Avrachenkov as reviewer);
- Xinwei Bai, "Performance bounds for random walks in the positive orthant", Univ. Twente, 20 September (K. Avrachenkov as reviewer);
- Yoann Couble, "Optimisation de la gestion des ressources de la voie retour", Institut National Polytechnique de Toulouse, 3 September (S. Alouf as reviewer);
- Thibault Debatty, "Design and analysis of distributed k-nearest neighbors graph algorithms", TELECOM ParisTech, 5 October (G. Neglia as reviewer);
- Philippe Ezran, "Topology Optimization of Wireless Networks", Univ. Paris-Saclay, 23 January (E. Altman as reviewer);
- Dalia-Georgiana Popescu, "Les hyperfractales pour la modelisation des reseaux sans fil", LINCS, 21 November (K. Avrachenkov as reviewer);
- Rémi Varloot, "Dynamic Network Formation", Université de recherche Paris Sciences et Lettres, École normale supérieure, 1 June (G. Neglia as jury president).

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- D. Politaki is a member of MASTIC, a commission in charge of popularization and regional and internal scientific animation, since July 2016.

10.3.2. Interventions

On October 12th, in the framework of *La Fête de la Science*, M. Dreveton participated in a mediation activity at *Espace de l'Art Concret* in Mouans-Sartoux. It was a mix between art and sciences (maths and physics). The topic was randomness and the targeted public was primary school students, from two different classes (one in the morning and one in the afternoon). Activities involved loaded dices, Galton Board, double pendulum, and some online program (http://weavesilk.com/, pupils really liked this). Each game was presented and students would figure out where the randomness comes from, and play/experiment by themselves (30 min per group).

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

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

Francois Brémond was a General Chair for the 3rd IEEE International Conference on Image Processing, Applications and Systems (IPAS 2018).

10.1.1.2. Member of Organizing Committees

- Abhijit Das organized 5th Sclera Segmentation Benchmarking Competition 2018, in conjunction with International Conference on Biometrics 2018.
- Abhijit Das organized 1st Thai Student Signature and Name component Recognition and Verification Competition 2018 in conjunction with ICFHR 2018.
- Antitza Dantcheva and Abhijit Das organized Recent Advances in Biometric Technology for Mobile Devices (RABTMD 2018) in conjunction with the 9th IEEE International Conference on Biometrics: Theory, Applications, and Systems BTAS 2018.
- Antitza Dantcheva and Abhijit Das were local organizing co-chairs of IEEE International Conference on Image Processing, Applications and Systems (IPAS 2018).
- Alexandra Konig was member of the organizing committee of RaPID-2018 workshop (Resources and ProcessIng of linguistic, para-linguistic and extra-linguistic Data from people with various forms of cognitive/psychiatric impairments) 8th of May 2018, Miyazaki, Japan.

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

- Antitza Dantcheva was program Co-chair at the International Conference of the Biometrics Special Interest Group (BIOSIG) 2017 and 2018, September, 2018, Darmstadt, Germany.
- Alexandra Konig was program chair of 2nd Workshop on AI for Aging, Rehabilitation and Independent Assisted Living (ARIAL) @IJCAI'18 - In conjunction with 27th International Joint Conference on Artificial Intelligence and the 23rd European Conference on Artificial Intelligence,July 15, 2018, Stockholm, Sweden.

10.1.2.2. Member of Conference Program Committees

- Francois Brémond was program committee member of WACV18.
- Francois Brémond was a member of the AVSS Steering Committee for 2018
- Monique Thonnat was program committee member of the conference ICPRAM 2019
- Antitza Dantcheva was in the technical program committee of the IAPR International Conference on Biometrics (ICB) 2018
- Jean-Paul Rigault is a member of the *Association Internationale pour les Technologies à Objets* (AITO) which organizes international conferences such as ECOOP.

10.1.3. Reviews

- Francois Brémond was reviewer for many journals, such as IEEE Transactions on Circuits and Systems for Video Technology, for the journal Frontiers in Human Neuroscience, for the journal "revue Retraite et société" and Medical Engineering & Physics.

- Antitza Dantcheva was reviewer for a number of journals including 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), IET Biometrics, Pattern Recognition letters, Pattern Recognition.
- Francois Brémond was reviewer for many conferences including : CVPR2018, ECCV2018, VOT2018, ICCV2018, WACV2018-19, ISG18.
- Monique Thonnat is a reviewer for the journal Artificial Intelligence in Medicine AIIM (Elsevier).
- Sabine Moisan was reviewer for the 10th ICAART'18 International Conference on Agents and Artificial Intelligence.

10.1.4. Member of Editorial Boards

- Francois Brémond has been handling editor of the international journal "Machine Vision and Application" since 2014 and editor of a PANORAMA special issue of Journal of Electronic Imaging Letters (JEI): Ultra Wide Context and Content Aware Imaging.
- Antitza Dantcheva has been in the Editorial Board of the Journal Multimedia Tools and Applications (MTAP) since 2017.

10.1.5. Invited Talks

Francois Brémond was invited by:

- Prof. Vasek Hlavac (Czech Technical University in Prague) to give a talk at the Computer Vision Winter Workshops CVWW in Cesky Krumlov, 5th February 2018.
- Derek J Collins (Huawei) to give a talk at the 3rd Annual Computer Vision / Video Intelligence Forum in Dublin, 0ct. 2018.
- Nicolas Padoy (University of Strasbourg) to give a talk at the workshop MCV at CVPR, June 2018
- Dr Lauren CAURO (City of Nice) to give a talk at the workshop "Ethique en santé connectée : La santé connectée, un progrès pour tous? ", 26 Oct 2018
- Christophe ROUSSEAU (University of Nice) to give a talk at the SophIA Summit : IA et vision, 9 Nov 2018
- Monique Thonnat was invited by INGER to give a talk on Monitoring People with Video Analysis at the Franco-Mexican workshop AI Technology Applications and Research on Frailty and Dementia, Mexico, 22-23 November 2018.
- A. Dantcheva. "Facial analysis: from soft biometrics to healthcare" at Information Sciences Institute (ISI) at the University of Southern California (USC), Los Angeles, USA, September 2018.
- A. Dantcheva. "Facial analysis: from biometrics to healthcare" at Institute of Computing Technology (ICT) at the Chinese Academy of Sciences (CAS), Beijing, China, August 2018.
- Monique Thonnat has been invited to give a talk on Activity Recognition for Neurocognitive Disorders at the International Symposium on Smart Healthcare and Age-Friendly by Taichung Veterans General Hospital, Taichung, Taiwan, 4 December 2018.
- Monique Thonnat has been invited by Taipei Medical University to give a talk on An Approach with serious Exergames for Assessment and Stimulation of Patients with Neurocognitive Disorders at Bioinformatics vs Medecine: The Elderly Care in the Information Era, The Needs and Responses, Taipei, Taiwan, 6 December 2018.
- Francois Brémond has been invited to give a talk on Activity Recognition for People Monitoring at the International Symposium on Smart Healthcare and Age-Friendly by Taichung Veterans General Hospital, Taichung, Taiwan, 4 December 2018.
- Francois Brémond has been invited by Taipei Medical University to give a talk on Activity Recognition to Monitor Older People at Bioinformatics vs Medecine: The Elderly Care in the Information Era, The Needs and Responses, Taipei, Taiwan, 6 December 2018.

10.1.6. Leadership within the Scientific Community

- Francois Brémond was a member of the Evaluation Committee (i.e. HCERES) of the research laboratory LIPADE from Paris Descartes University, 15 March 2018.
- Francois Brémond was a member of the Evaluation Committee for the professor position in computer science of Lyon University, April 24th and May 15th 2018.
- Francois Brémond was a Reviewer for the AME Programmatic Proposal "Human-Robot Collaborative AI for Advanced Manufacturing and Engineering" on behalf of (A*STAR) Singapore, 30th May 2018.
- Francois Brémond was an expert for a research program at the Campus for Research Excellence and Technological Enterprise (CREATE) from the National University of Singapore (NUS), Oct 2018.
- Francois Brémond was the working group Leader for reviewing a new Inria Project Team Proposal: CHORALE
- Francois Brémond is part of the Advisory Board of the V4Design EU project for the Horizon 2020 framework, ICT-20-2017 Call, Tools for smart digital content in the creative industries, 2018-21
- 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

10.2. Teaching - Supervision - Juries

10.2.1. Supervision

- PhD: Guillaume Sacco, Serious video games in gerontological practice: application to relationships between physical activity and cognition, Thèses, Université Côte d'Azur, June 2018.
- PhD: F. NEGIN, Toward Unsupervised Human Activity and Gesture Recognition in Videos, Theses, Universit´e Cote d'Azur, Sep 2018.
- PhD: L. A. NGUYEN, Long-term people trackers for video monitoring systems, Theses, Université Côte d'Azur, July 2018.
- PhD: M. K. PHAN TRAN, Maintaining the engagement of older adults with dementia while interacting with serious game, Theses, Université Côte d'Azur, April 2017,

10.2.2. Juries

Francois Brémond was part of several PhD and HDR Juries :

- Nicolas Padoy, HDR, University of Strasbourg, 19 January 2018
- Renato Baptista, University of Luxembourg, 29 January 2018
- Nicolas Chesneau, Inria Lear, Grenoble, 23 February 2018
- Dinh Van Nguyen, UPMC, Paris, 2 May 2018
- Riadh Ksantini, HDR, SUP'COM Tunis, 10 September 2018
- Yiqiang Chen, LIRIS, University of Lyon, 12 October 2018
- Katy Blanc, University of Nice, 17 December 2018
- Mohamed Adel Benamara, LIRIS, University of Lyon, 19 December 2018

Monique Thonnat was member of the selection board of professor PU27 at ENIB, Brest.

Monique Thonnat is member of the scientific board of ENPC, Ecole Nationale des Ponts et Chaussées since June 2008.

TITANE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of the Organizing Committees

- Pierre Alliez: advisory committee of the EUROGRAPHICS annual conference 2018.
- Yuliya Tarabalka: Scientific Advisory Committee of the 2nd International Electronic Conference on Remote Sensing.

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

Pierre Alliez is full paper co-chair of

- EUROGRAPHICS 2019 conference, organized in Genova, May 2019.
- Solid and Physical Modeling 2019, organized in Vancouver, June 2019.

10.1.2.2. Member of the Conference Program Committees

- Pierre Alliez: EUROGRAPHICS Symposium on Geometry Processing, International Conference on Geometric Modeling and Processing, Shape Modeling International, EUROGRAPHICS Workshop on Graphics and Cultural Heritage.
- Florent Lafarge: Area chair of Asian Conference on Computer Vision (ACCV)
- Yuliya Tarabalka: SPIE in Remote Sensing conference, ACIVS conference.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Pierre Alliez: associate editor of Computer Graphics Forum, Computer-Aided Geometric Design and Graphical Models. He is also a member of the editorial board of the CGAL open source project.
- Florent Lafarge: associate editor of The Visual Computer since 2015.
- Yuliya Tarabalka: associate editor for IEEE Transactions on image processing since 2018, Springer journal Sensing and Imaging since 2017, the International Journal of Computing since 2017 and journal Remote Sensing since 2017.

10.1.3.2. Reviewer - Reviewing Activities

- Pierre Alliez: reviewer for ACM Transactions on Graphics, ACM Siggraph conference, ACM Siggraph Asia conference, Computer Graphics Forum, CAGD, CAD, Symposium on Geometry Processing, Eurographics workshop on cultural heritage, Geometric Modeling and Processing, Shape Modeling International.
- Florent Lafarge: reviewer for the ISPRS journal of Remote Sensing and Photogrammetry.
- Yuliya Tarabalka: reviewer for the journals IEEE PAMI, IEEE TIP, IEEE TGRS, conferences IEEE IGARSS (student competition selection committee), ACIVS, SPIE, ECRS.

10.1.4. Invited Talks

- Pierre Alliez: invited talk at the Einstein Workshop on Geometry and Physics in Computer Graphics, organized in Berlin.

- Yuliya Tarabalka: keynote at the ACIVS 2018 conference (Advanced Concepts for Intelligent Vision Systems, Poitiers), TERRADATA workshop (Paris, 2018), conference "Challenges for imaging and modeling complex media and processes: The Earth's interior and earthquake rupture" (Sophia Antipolis, 2018). She also gave an invited tutorial on machine learning at IEEE IGARSS 2018 conference.

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: reviewer for the European commission (two EU projects), ERC, evaluator for the French ANR, Belgium FNRS, Innovation Fund Denmark.
- Yuliya Tarabalka: expert evaluator for the ANR proposals and "Make Our Planet Great Again" CampusFrance proposals.

10.1.7. Research Administration

- Pierre Alliez: member of the scientific committee of the 3IA Côte d'Azur proposal.
- Yuliya Tarabalka: member of the scientific committee of the Academy 3 of the University Cote d'Azur since 2017.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Pierre Alliez and Florent Lafarge, 3D Meshes and Applications, 32h, M2, Ecole des Ponts ParisTech, France.

Master: Pierre Alliez and Florent Lafarge, Ingeniérie 3D, 21h, M2, university Nice Sophia Antipolis, France.

Master: Pierre Alliez and Florent Lafarge, Interpolation, 60h, M1, university Nice Sophia Antipolis, France.

Master: Pierre Alliez and Florent Lafarge, Mathématiques pour la géométrie, 30h, M1, EFREI, France.

Master: Florent Lafarge, Traitement d'images numériques, 6h, M2, university Nice Sophia Antipolis, France.

Master: Yuliya Tarabalka, Discrete inference and learning, 12h, M2 MVA, ENS Paris-Saclay & CentraleSupelec, France.

Master: Yuliya Tarabalka, Mathematical methods, 25h, MSc in data sciences and business analytics ESSEC-CS, CentraleSupelec, France.

Licence: Yuliya Tarabalka, Advanced algorithms, 28.5h, L2 Networks and Telecoms, IUT Nice Côte d'Azur, France.

10.2.2. Supervision

PhD defended:

Jean-Dominique Favreau, Compact image vectorization by stochastic approaches, Université Côte d'Azur, defended March 15 [11], Florent Lafarge and Adrien Bousseau.

PhDs in progress:

Hao Fang, Scale-space understanding in urban scenes, since March 2016, Florent Lafarge.

Jean-Philippe Bauchet, City modelling from high resolution satellite images, since October 2016, Florent Lafarge.

Lionel Matteo: From Pleiades images to very high resolution topography in complex zones, since September 2017, Yuliya Tarabalka and Isabelle Manighetti.

Onur Tasar, Using deep learning approaches to devise an efficient representation for large-scale satellite images, since October 2017, Yuliya Tarabalka and Pierre Alliez.

Nicolas Girard, How to structure satellite data, since November 2017, Yuliya Tarabalka.

Flora Quilichini, Geometry Compression, since January 2018, Pierre Alliez and Guillaume Lavoué (INSA Lyon).

Muxingzi Li, Image-based 3D reconstruction of indoor environments, since February 2018, Florent Lafarge and Renaud Marlet (ENPC).

Vincent Vadez, Geometric simplification of satellites for thermal simulation, since August 2018, Pierre Alliez.

10.2.3. Juries

Pierre Alliez:

- Thesis committee and president: Arnaud Bletterer (I3S Sophia Antipolis).
- HDR committee and president: Stefanie Wuhrer (Inria Grenoble).
- Comité de suivi doctoral: Simon Rodriguez (Inria Sophia Antipolis).
- Comité de suivi doctoral: Julien Renaudeau (Schlumberger).
- Comité de suivi doctoral: Oussama Ennafii (IGN).

Florent Lafarge:

- Thesis reviewer: Hassan Bouchiba (Ecole des Mines Paristech).

Yuliya Tarabalka:

- Thesis committee: Hariprasad Kannan (University Paris-Saclay), Nicolas Audebert (University Bretagne Sud and ONERA).
- Thesis reviewer: Praveer Singh (University Paris-Est), Lloyd Windrim (University of Sydney).

10.3. Popularization

Yuliya Tarabalka gave a seminar for the academic-industrial event "Les rendez-vous Université Côte d'Azur-Entreprise", May 2018.

10.3.1. Internal or external Inria responsibilities

Pierre Alliez is head of science of the Inria Sophia Antipolis Center since September 2018, and member of the Inria evaluation committee.

10.3.2. Interventions

- Pierre Alliez gave a seminar and demo for the "fête de la science", October 7th.

<h1 style="text-align:center; color:red">TOSCA Project-Team</h1>

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. 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).
- 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.

8.1.2. Scientific Events Organisation

8.1.2.1. General Chair, Scientific Chair

- Etienne Tanré was the General Chair of the Fourth International Conference on Mathematical Neuroscience https://icmns2018.inria.fr/, held in Antibes-Juan les Pins, June 11-13 2018.

8.1.2.2. Member of the Organizing Committees

- M. Bossy was a co-organizer of the workshop on Wasserstein calculus and related topics, ICMS, Edinburgh, UK- 19 to 23 November 2018.
- C. Fritsch co-organizes with Marianne Clausel (Univ. de Lorraine) the weekly Seminar of Probability and Statistics of IECL, Nancy.
- C. Fritsch co-organized the Ada Lovelace Day held at Inria Nancy – Grand Est, October 9.

8.1.3. Scientific Events Selection

8.1.3.1. Member of the Conference Program Committees

- M. Bossy is member of the SMAI2019 Conference Scientific Committee.
- D. Talay is serving as a member of the "Perturbation Techniques in Stochastic Analysis and Its Applications" Conference Program Committee (Luminy, France, 2019).

8.1.4. Journal

8.1.4.1. Member of the Editorial Boards

- 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*.
- A. Lejay is one of the three editors of the *Séminaire de Probabilités* and *Mathematics and Computers in Simulation* (MATCOM).
- D. Talay served as an Area Editor of *Stochastic Processes and their Applications*, and as an Associate Editor of *Probability, Uncertainty and Quantitative Risk*, *ESAIM Probability and Statistics*, *Stochastics and Dynamics*, *Journal of Scientific Computing*, *Monte Carlo Methods and Applications*, *Oxford IMA Journal of Numerical Analysis*, *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*.

8.1.4.2. Reviewer - Reviewing Activities

- N. Champagnat wrote reviews for *Annales de l'Institut Fourier*, *The Annals of Applied Probability* (three times this year), *Stochastic Processes and Their Applications*, *Electronic Journal of Probability* and *Frontiers of Mathematics in China*.

- C. Fritsch wrote reviews for *Applied Mathematics and Computation* and *PLOS ONE*.

- A. Lejay wrote reviews for *Proceedings of the Royal Society A*, *Mathematics and Computers in Simulation*, *Journal of Theoretical probability*, *Stochastic Processes and their Applications*, *Journal of computational physics*, *Journal of Functional Analysis*, *Electronic Journal of Probability*, *Journal of Optimization theory and applications*, *Physical Review E*, *Potential Analysis*, *Annals of Applied Probability*, *Annales de l'IHP, probabilités et statistique* and *Acta Mathematica Scientia*.

- 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.

- E. Tanré wrote reviews for *Annales Henri Lebesgue*, *The Annals of Applied Probability*, *Mathematics, MDPI*

- E. Tanré serves has a permanent reviewer of *Mathematical Reviews of the American Mathematical Society (MathSciNet)*.

- D. Villemonais wrote reviews for *Comptes-Rendus de l'Académie des Sciences de Paris*, *Journal of Advanced Probability*, *Electronic Journal of Probability*, *ESAIM: Probability & Statistics*, *Stochastic processes and applications*, *Markov Processes and Related Fields*, *The Annals of Applied Probability*.

8.1.5. Invited Talks

- N. Champagnat has been invited to give talks at the conference of *ANR NONLOCAL* in Chambéry in March, at the *Conference on Probability and Biological Evolution* at CIRM, Luminy in June, at *Journée mathématiques et informatique pour l'analyse des données et imagerie en oncologie* of the Cancéropôle Est at Institut de Cancérologie de Lorraine, Nancy in June, at the *MCQMC 2018* conference in Rennes in July, at the *Conference on Advances in Statistical Mechanics* at CIRM, Luminy in August, at the conference *Populations: Interactions and Evolution* at IHP, Paris in September and at the *ICMS workshop on Wasserstein calculus and related topics* at Bayes Center, Edinburgh in November.

- N. Champagnat has been invited to give a seminar talk at the *Groupe de travail PEIPS* at École Polytechnique in Palaiseau in February.

- N. Champagnat gave a colloquium talk at the *Colloquium - Mathematiques à Angers* in Angers in February.

- N. Champagnat has been invited to give a tutorial talk (mini-course) at the *Workshop on Mathematical Modeling with Measures: where Applications, Probability and Determinism Meet* at Lorentz Center, Leiden in December.

- Q. Cormier, P. Helson and E. Soret have presented three posters at the conference *International Conference on Mathematical Neuroscience* in Antibes Juan-les-Pins in June.

- C. Fritsch has been invited to give a plenary talk at the workshop *Modélisation stochastique et analyse en biologie* in Tours in May.

- C. Fritsch has been invited to give a plenary talk at the *third Mathematical Biology Modelling Days of Besançon* in June.

- C. Fritsch gave a talk at the *European Conference on Mathematical and Theoretical Biology* in Lisbonne in July.

- A. Lejay have been invited to give a mini-course "A short introduction to rough paths" in the *Rencontres Mathématiques de Rouen* in June 2018.

- A. Lejay have been invited to give a talk at the workshop *Random graphs and its applications for networks*, Saint-Étienne, October 2018.

- A. Lejay have been invited to give talks at the conference *Stochastics and PDE*, in Bucarest, September 2018 and at the conference *2th International Vilnius Conference on Probability Theory and Mathematical Statistics and 2018 IMS Annual Meeting on Probability and Statistics*, in Vilnius, June 2018.

- A. Lejay have been invited to give a seminar talk at the Mathematical Institute in Oxford, November 2018.

- E. Soret gave a lecture at the national conference *Journées de Probabilités* in Tours in June.

- D. Talay was an invited speaker at the 'Symposium on Optimal Stopping in Honor of Larry Shepp', Rice University in Houston, Texas, USA, 25-29 June 2018.

- D. Talay was an invited plenary speaker at the 9th International Conference on Stochastic Analysis and its Applications, Bielefeld, Germany, 3-7 September 2018.

- D. Talay was an invited speaker at the 'Wasserstein Calculus and Related Topics' Moscow-UK workshop on Stochastic Analysis, Edinburgh, UK, 19-23 November 2018.

- E. Tanré has given an invited talk at the *12th International Vilnius Conference on Probability Theory and Mathematical Statistics* and *2018 IMS Annual Meeting on Probability and Statistics* in Vilnius in July.

- E. Tanré has been invited to give a seminar talk in Lyon in October.

- M. Tomasevic gave a seminar at CMAP Laboratory, Ecole Polytechnique, France, in March.

- M. Tomasevic gave a lecture at the 'Jps-2018: Jeunes Probabilistes et Statisticiens 2018', Saint–Pierre d'Oléron, France, 13-18 May 2018.

- M. Tomasevic gave a lecture at the national conference *Journées de Probabilités* in Tours in June.

- M. Tomasevic gave a lecture at the 9th International Conference on Stochastic Analysis and its Applications, Bielefeld, Germany, 3-7 September 2018.

- M. Tomasevic gave a lecture at the 'Journée francilienne d'accueil des postdoctorants en mathématiques', Institut H. Poincaré, Paris, France, in October.

- D. Villemonais has been invited to give talks at the *Workshop on Particle systems and PDEs* at Bath University and at the conference *Populations: Interactions and Evolution* at IHP, Paris in September.

- D. Villemonais has been invited to give seminar talks at Warwick University, at the *Probability seminar* of London School of Economics and at the probability seminar of Université Paris-Descartes.

8.1.6. Leadership within the Scientific Community

- M. Bossy is serving as a vice president of the Inria Evaluation Committee.
- 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 served as a member of the scientific council of the Complex System academy of the UCA Idex.
- D. Talay served as a member of the committee in charge of preparing the application of Paris to the International Congress of Mathematicians 2022.
- 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.

8.1.7. Scientific Expertise

- M. Bossy served as a committee member for Pierre Lafitte Prize 2019.
- M. Bossy participated in a Associated Professor position recruitment committee at CMA Mines-ParisTech.
- M. Bossy was member of the hiring committee 26 PR at Université d'Evry.

- 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 served as a member of the HCERES evaluation committees for the LPSM Laboratory (Paris Sorbonne University) and the ENSTA mathematics department.
- D. Talay chaired the 2019 Pionneer ICIAM prize committee.

8.1.8. 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 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.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master : M. Bossy *Stochastic Particle Methods for PDEs*, 18h, M2 Probabilité et Applications, Université Pierre et Marie Curie, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 13.5h, 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, *Introduction to Quantitative Finance*, 3h, M1, École des Mines de Nancy, France.

Master: C. Fritsch, *Probability theory*, 61h, M1, École des Mines de Nancy, France.

Master: C. Fritsch, *Probability theory*, 40h, L3, École des Mines de Nancy, France.

Master: A. Lejay, *Simulation des marchés financiers*, 29h, M2, Master PSA, Université de Lorraine, France.

Master: D. Talay *Invariant measures of diffusion processes*, 18h, M2 Probabilité et Applications, Université Paris 6, 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) and M. Tomasevic (practical classes) *Numerical probability for mathematical finance*, 20h (8h + 12h), M2, Univ. Côte d'Azur (Master IMAFA), France.

8.2.2. Supervision

PhD in progress: Alexis Anagnostakis, *Étude du mouvement brownien collant*, Université de Lorraine, Octobre 2018, A. Lejay and D. Villemonais.

PhD: Antoine Brault, *Flots rugueux et inclusions différentielles perturbées*, Université Toulouse 3, Octobre 2018, A. Lejay and L. Coutin (Université Toulouse 3).

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).

PhD: M. Tomasevic, *On a Probabilistic Interpretation of the Keller-Segel Parabolic-Parabolic Equations*, Université Côte d'Azur, November 2018, D. Talay.

8.2.3. Juries

- M. Bossy served as a referee for the Ph.D. theses of Meïssam Bahlali, *Adaptation de la modélisation hybride eulérienne / lagrangienne stochastique de Code Satrne à la dispersion atmosphérique de polluants à l'échelle micro-météorologique et comparaison à la méthode eulérienne* Université Paris-Est, October 19, 2018, and of Alexandre Zhou, *Etude théorique et numérique de problèmes non linéaires au sens de McKean en finance*, Université Paris-Est, October 17, 2018.

- M. Bossy served as an examiner for the Ph.D. thesis of Isaque Santa Brigida Pimentel, *Valorisation optimale asymptotique avec risque asymétrique et applications en finance*, Université Paris Saclay, October 16, 2018.

- M. Bossy served as an examiner for the HDR of Dario Vincenzi, *Dynamique Lagrangienne en Turbulence et Turbulence Elastique*, Université Côte d'Azur, December 14, 2018.

- N. Champagnat served as a referee for the Ph.D. theses of Simon Girel, *Modélisation de la réponse immunitaire T-CD8: Analyse mathématique et modèles multiéchelles*, Univ. Lyon 1, November 13, 2018 and of Paulien Jeunesse, *Analyse statistique autour du taux de mortalité*, Université Paris Dauphine, January 8, 2019.

- N. Champagnat served as an examiner for the Ph.D. thesis of Rim Touibi, *Sur le comportement qualitatif des solutions de certaines équations aux dérivées partielles stochastiques de type parabolique*, Université de Lorraine, December 8, 2018.

- A. Lejay served as an examiner for the Ph.D. theses of Rim Touibi, *Sur le comportement qualitatif des solutions de certaines équations aux dérivées partielles stochastiques de type parabolique*, Université de Lorraine, December 8, 2018, of Antoine Brault, *Flots rugueux et inclusions différentielles perturbées*, Université Toulouse 3, October 8, 2018, and of Guillaume Copros, *Convergence of generic infinite products of nonexpansive and uniformly continuous operators*, Université Toulouse 3, October 2018.

- A. Lejay served as an examiner for the Habilitation thesis of Renaud Marty, *Quelques contributions à l'étude et aux applications des processus multifractionnaires et de la longue dépendance*, Université de Lorraine, February 2018.

- D. Talay served as an examiner for the Ph.D. thesis of Xiaoli Wei, *Problèmes de Contrôle de type McKean–Vlasov et Applications*, Université Paris Diderot, December 2018.

- D. Talay served as an examiner for the Habilitation thesis of Guillaume Bernis, *Modélisation Probabiliste des Marchés de Crédit*, université Paris Panthéon Sorbonne, January 2018.

- D. Talay served as an examiner for the Habilitation thesis of Ludovic Goudenège, *Algorithmes Numériques pour des Problèmes Stochastiques*, université Paris Saclay, December 2018.

- D. Talay served as a referee for Ph.D. thesis of Igor Honoré, *Estimations Non Asymptotiques de Mesures Invariantes et Régularisation par un Bruit Dégénéré de Chaînes d'Equations Différentielles Ordinaires*, université Paris Saclay, December 2018.

8.3. Popularization

8.3.1. Interventions

- M. Bossy gave the plenary lecture for the Academic Awards Ceremony of the Olympics of Geosciences and Mathematics 2018.

- Q. Cormier has animated the Inria desk at *Fête de la Science*.

- E. Tanré has presented his researches at *Journées Portes Ouvertes - Inria Sophia-Antipolis*.

<p align="center" style="color:red">WIMMICS Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair
Elena Cabrio was:

- Co-chair of CLiC-it: Fifth Italian Conference on Computational Linguistics, Turin, December.
- Challenge co-chair of The Web Conference (WWW), Lyon, France, April 23-27.

Catherine Faron Zucker was Program Chair together with Chiara Gandini of the 21st International Conference on Knowledge Engineering (EKAW 2018), November, Nancy.

Fabien Gandon was general co-chair of The Web Conference in Lyon, April, 2018.

Serena Villata was:

- Program Chair together with Eduardo Ferme of the 17th edition of the International Workshop on Non-Monotonic Reasoning (NMR), Tempe (Arizona), October,
- Chair together with Filip Radlinski of the "Poster and Demo" session of the Web Conference (WWW), Lyon, France, April,
- Chair together with Harko Verhagen, Mehdi Dastani and Jurgen Dix of the Dagstuhl Seminar on Normative Multi-Agent Systems NorMAS, April [67]

10.1.1.2. Member of the Organizing Committees
Michel Buffa organized the *WebAudio Plugins* Workshop at the Web Audio conference, Berlin, September 19-21.

Fabien Gandon was co-organizer of the Joint Day Inria Ministry of Culture 22/11/2018.

Alain Giboin was member of the organization committee of HCSE.

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees
Olivier Corby was co-chair of the poster and demo track at EKAW, together with Philipp Cimiano.

Isabelle Mirbel was co-chair of the Doctoral Consortium at IEEE International Conference on Research Challenges in Information Science (RCIS).

10.1.2.2. Member of the Conference Program Committees
Michel Buffa: WebAudio Conference, ISWC.

Elena Cabrio: Association for Computational Linguistics conference (ACL), EMNLP, Extended Semantic Web Conference (ESWC), International Semantic Web Conference (ISWC), AAAI Conference on Artificial Intelligence.

Olivier Corby: The Web Conference 2019, IC, Digital Health, EKAW, ICCS, ISWC, QuWeDa.

Catherine Faron Zucker: The Web Conference (WWW) 2019, ICCS, ISWC, Web Science, ESWC, IJCAI, Semantics, Web Audio Conference WAC, workshop WWW Educational Knowledge Management EKM, workshop WWW Reasoning on Data RoD, EGC 2019, EIAH, IC, CNIA.

Fabien Gandon: The Web Conference (WWW), IJCAI, ISWC (Blue Sky), EGC, SemWeb.Pro.

Alain Giboin: ISWC, VOILA Workshop (at ISWC), IC.

Isabelle Mirbel: International Conference on Advanced Information Systems Engineering (CAISE).

Oscar Rodríguez Rocha: KEOD, KSE, EKAW, IJCAI, ECAI, Semantics.

Andrea Tettamanzi: AAAI-19, AAMAS, ACM (SWA Track), EGC 2019, EKAW, PPSN, TheWebConf 2019, Web Intelligence, WILF, WIVACE. He was also senior PC Member of IJCAI/ECAI and got a mention as distinguished PC Member.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards
Catherine Faron Zucker: Revue d'Intelligence Artificielle.

Isabelle Mirbel: Ingénierie des Systèmes d'Information.

10.1.3.2. Reviewer - Reviewing Activities
Elena Cabrio: Journal Argument and Computation.

Catherine Faron Zucker: The Journal of Web Science, Journal of Web Semantics (JWS), International Journal on Semantic Web and Information Systems (IJSWIS), IEEE Transactions on Computational Social Systems (TCSS), IEEE's Transactions on Learning Technologies (TLT), Multimodal Technologies and Interaction (MTI), Ingénierie des systèmes d'information (ISI).

Andrea Tettamanzi: Semantic Web Journal, IEEE Transactions on Evolutionary Computation.

Serena Villata: Journal of Logic and Computation, Argument & Computation, Artificial Intelligence.

10.1.4. Invited Talks

Michel Buffa: Presentation of the ANR WASABI project and of WebAudio technologies at the "Journée Ministère de la Culture - Inria" on 22/11 as part of the agreement between these two institutions, at the BnF.

Presentation of the WebAudio, WebMidi and WebAssembly W3C standards. Developer's Day of the TPAC conference in Lyon, October, Lyon, France.

AZKAR Project, post-mortem presentation *Remote museum visits by an intelligent mobile robot*, during Mobility session: Autonomous and Connected Vehicle and Smart Cities, RoboPACA conference, Sophia Antipolis, France.

Elena Cabrio: *Argument Mining for Machine Translation*, 13th Machine Translation Marathon, Prague, September 6th.

From Linguistics to Computation across the Mountains to the Sea, FBK PhD Day, February 2nd, Trento (Italy).

Olivier Corby: *LDScript : a Linked Data Script Language*, Inria Montpellier, March 21st.

Semantic Web of Linked Data, Inria Rennes, April 5th.

Fabien Gandon: *Web Science, Artificial Intelligence and Intelligence Augmentation*, Invited Talk at Dagstuhl Perspectives Workshop 18262 - 10 Years of Web Science: Closing The Loop, 27/06/2018.

The revolutions of the Web planet, Invited talks I3S General Assembly, Nice, 5/07/2018.

Adding Missing Links to bridge Natural and Artificial Intelligence on the Web, Invited talks at University of Queensland, Brisbane, 08/08/2018.

A Web linking all kinds of intelligence, Invited talks at « Przemiany Festival », Copernicus Science Centre, French Embassy in Warsaw, 15/09/2018.

Towards a Web linking all kinds of intelligence, Invited Talk at SophI.A Summit, 07/11/2018.

Andrea Tettamanzi: Invited talk on *Guess What You Don't Know: Towards an Evolutionary Epistemology of Ontology Learning* at the 21st International Conference on Knowledge Engineering and Knowledge Management, Nancy, France, November 14th.

Conference on *Unsupervised Learning* at Amadeus, Sophia Antipolis, March 26th.

Tutorial talk on *Uncertainty in the Semantic Web: The case of axiom scoring* at the 12th International Conference on Scalable Uncertainty Management, Milan, Italy, October 3rd.

Conference on *Unsupervised Learning* at Amadeus, Sophia Antipolis, October 19th.

Serena Villata has been invited to deliver an Early Career Spotlight Talk at the main conference in Artificial Intelligence (IJCAI), namely the 27th International Joint Conference on Artificial Intelligence [0], in July in Stockholm (Sweden). The topic of this invited Early Career Spotlight Talk, *Artificial Argumentation for Humans* is detailed in the related publication [62].

10.1.5. Leadership within the Scientific Community

Fabien Gandon is:

- member of IW3C2 steering committee for The Web Conference (WWW series).
- member of SWSA steering committee for the ISWC conference (as general chair of ISWC 2019).
- member of ESWC conference steering committee.
- member of Web Science Trust Network

10.1.6. Scientific Expertise

Olivier Corby was reviewer for two project submissions at Université Gaston Berger, Senegal.
Catherine Faron Zucker:

- is the scientific referent of the Inria Learning Lab,
- was reviewer for the LabCom V3 2018 of the French Agence Nationale de la Recherche (ANR),
- was reviewer for the ARC6 call for projects of Auvergne Rhône Alpes region,
- was reviewer for the RIN call for projects of Normandie region.

Alain Giboin was reviewer for the Generic Call for Projects of the French Agence Nationale de la Recherche (ANR).

10.1.7. Research Administration

Olivier Corby is member of the scientific board of Université Côte d'Azur RISE academy (Network, Information, Digital Society) and member of the Scientific and Pedagogical committee of the Digital Systems for Humans, DS4H, graduate school at UCA.

Catherine Faron Zucker:

- is General Treasurer of the French Society for Artificial Intelligence (AFIA).
- was leading the steering committee of the AFIA college on Knowledge Engineering until June 2018.
- was member of the 2018 recruitment committee for young graduate scientists (CRCN) at Inria Lille.
- is member of the permanent commission of human resources (CPRH) of Université Nice Sophia Antipolis, section CNU 27

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

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[0]https://www.ijcai-18.org/early-career-talks/

Alain Giboin:

- was member of the scientific committee of the IDEX Jedi Academy 5 ”Homme, Idées et Milieux”.
- was co-facilitator of the Idex Jedi Academy 5 initiative ”Humanités numériques” (with Arnaud Zucker, CEPAM).
- is member of the scientific committee of MSHS Axis 2 ”TIC, Usages et Communautés”.
- is co-facilitator of the initiative ”Artefacts et Coordination” of MSHS Axis 2.
- served as scientific correspondent for Inria Sophia Antipolis of COERLE (Inria Comité Opérationnel d’Evaluation des Risques Légaux et Ethiques), in tandem with the legal correspondent Nadège Camelio-Laurent.

Isabelle Mirbel was Vice-dean of the Science Faculty at University Nice-Sophia Antipolis until July 2018.

”Les lundis de l’ergonomie” is a cycle of seminars on Human Computer Interaction (HCI) and UX Design. Organized by Emilie Palagi and Louise Chaussade, this multidisciplinary series of talks attract academic and professional profiles but also anyone interested in social science’s approach to digital matters. This year, presentations took place with Naji Bouchiba, Guillene Ribière, Alessandro Trezzi, Manuel Boutet, Marc Relieu. The slides and some video records are available online [0].

10.1.8. Editorial Activities

Catherine Faron Zucker is among the scientific editors of the proceedings of the 21st International Conference on Knowledge Engineering and Knowledge Management, Nov 2018, Nancy, France. Lecture Notes in Computer Science 11313, Springer [65].

Serena Villata is among the authors of two editorial activities:

- Qingliang Chen, Paolo Torroni, Serena Villata: Preface. Fundam. Inform. 158(1-3): v-vii [13],
- Ugo Pagallo, Monica Palmirani, Pompeu Casanovas, Giovanni Sartor, Serena Villata: AI Approaches to the Complexity of Legal Systems - AICOL International Workshops 2015-2017: AICOL-VI@JURIX 2015, AICOL-VII@EKAW 2016, AICOL-VIII@JURIX 2016, AICOL-IX@ICAIL 2017, and AICOL-X@JURIX 2017, Revised Selected Papers. Lecture Notes in Computer Science 10791, Springer [66].

10.1.9. Standardization

- Michel Buffa is member of the WebAudio W3C working group and is Academic Representative of Université Côte d’Azur at W3C (AC Rep).
- Fabien Gandon is Advisory Committee representative of Inria at the World-Wide Web Consortium (W3C)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Michel Buffa is director of MIAGE Nice-Sophia Antipolis: Licence, Master 1 and four Master 2 degrees, about 350 students [0].

Elena Cabrio is responsible of the internship program, 40 hours, (L3 and M2 MIAGE), University of Nice-Sophia Antipolis (UNS), France.

Catherine Faron Zucker is responsible of the Web option of the 5th year of Polytech Nice Sophia engineering school (Master degree) and is in charge of continuous training for the computer science department of Polytech Nice Sophia Antipolis.

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[0]https://lundisergo.hypotheses.org/
[0]http://miage.unice.fr

Andrea Tettamanzi has managed the 3nd year of the *Licence* (Bachelor of Science) in Business Informatics (MIAGE) at the UFR Science of the University of Nice-Sophia Antipolis (UNS),

> License: Elena Cabrio, Web Server Programming, 45 hours, (L1 INFO), UNS, France.
>
> License: Elena Cabrio, Introduction to the Web, 40 hours, (L2MASS), UNS, France.
>
> Licence: Michel Buffa, JavaScript: L3 Miage (40h)
>
> License: Elena Cabrio, Internship supervision, 18 hours, (L3MIAGE), UNS, France.
>
> Licence: Isabelle Mirbel, Web programming (Persistency), 36h, L3, UNS, France.
>
> Licence: Andrea Tettamanzi, Algorithmics – Object Oriented Programmaing – Python, 50 h, L2, UNS, France.
>
> Licence: Andrea Tettamanzi, Advanced client side Web Programming, 39 h, L2, UNS, France.
>
> Licence: Andrea Tettamanzi, Web, 30 h, L3, UNS, France.
>
> Master: Elena Cabrio, WebScience, 10 hours, (M2IFI), 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: Olivier Corby, Catherine Faron Zucker, Oscar Rodríguez Rocha, Semantic Web of Data, 65h, M2, UNS, France.
>
> Master: Olivier Corby, Semantic Web, 3H, M2, University of Montpellier, France.
>
> Master: Catherine Faron Zucker, Oscar Rodríguez Rocha, Andrea Tettamanzi, Knowledge Engineering, 35h, M2, UNS, France.
>
> Master: Catherine Faron Zucker, Oscar Rodríguez Rocha, Web Languages, 35h, M1, UNS, France.
>
> Master: Fabien Gandon, Web Science, 3 h, M1, UNS, France.
>
> Master: Fabien Gandon, Integrating Semantic Web technologies in Data Science developments, 2*28 h, M2, DSTI, France.
>
> Master/PhD: Semantic Web and Linked Data Graphs, 3 h, Winter School on Complex Networks 2018 (5th edition), France.
>
> Master: Alain Giboin, Human-Computer-Interaction Design and Evaluation, 21h, M2, UNS.
>
> Master: Alain Giboin, Human-Computer-Interaction Adaptation of User Interfaces, 4h, M2, UNS.
>
> Master: Alain Giboin, Task and Activity Analysis for HCI design and evaluation, 6h, M2 Sociology and Ergonomics of Digital Technologies, UNS.
>
> Master: Alain Giboin, HCI Design and Evaluation, 10h, M2 Sociology and Ergonomics of Digital Technologies, UNS.
>
> Master: Alain Giboin, Digital Strategy (formerly: Economics and ICT) : Ergonomics, 13h, M2 Economics and ICT, ISEM, UNS.
>
> Master: Isabelle Mirbel, Project Management, 24h, M2, UNS, France.
>
> Master: Isabelle Mirbel, Requirement Engineering, 36h, M1, UNS, France.
>
> Master: Andrea Tettamanzi, Logic for AI, 30 h, M1, UNS, France.
>
> Master: Andrea Tettamanzi, Parallelism, 18 h, M1, UNS, France.
>
> Master: Andrea Tettamanzi, Web Science, 5 h, M1, UNS, France.
>
> Master: Andrea Tettamanzi, Data analysis in distributed environment, 18 h, M2, UNS, France.
>
> **E-learning**
>
> > Michel Buffa, MOOC *JavaScript Intro* EDx platform.
> >
> > Michel Buffa, MOOC *HTML5 Coding Essentials and Best Practices*, Edx platform.
> >
> > Michel Buffa, MOOC *HTML5 Apps and Games*, also on EDx platform.
> >
> > Fabien Gandon, Catherine Faron Zucker, Olivier Corby, MOOC *Web sémantique*, FUN.
> >
> > Fabien Gandon, Catherine Faron Zucker, Olivier Corby, MOOC *Web of Data*, FUN.
> >
> > Fabien Gandon, Catherine Faron Zucker, Olivier Corby, MOOC *Web of Data*, Coursera [0], to be run in 2019.

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[0] https://www.coursera.org/learn/web-data/

10.2.2. Supervision

HdR: **Michel Buffa**, *Des wikis aux simulations d'amplificateurs de guitare à lampes, le Web plateforme universelle*, UNS, December 12th, President : Fabien Gandon.

HdR: **Serena Villata**, *Explainable, Trustable and Emphatic Artificial Intelligence: from Formal Argumentation Theory to Argumentation for Humans*, UNS, July 4th, President : Fabien Gandon.

PhD: **Duc Minh Tran**, *Learning Ontologies from Linked Open Data*, Andrea Tettamanzi, UNS and Nguyen Thanh Binh, University of Danang, July [12].

PhD: **Emilie Palagi**, *Design of a Model-based Method for Evaluating Exploratory Search Systems*, UNS, Labex UCN@Sophia, Alain Giboin, Fabien Gandon with Raphaël Troncy (Eurecom), November 23rd.

PhD in progress: **Molka Dhouib**, *Modeling of a social network of service providers and companies and recommendation of service providers by reasoning on the social network*, UNS, Catherine Faron Zucker with Andrea Tettamanzi.

PhD in progress: **Ahmed El Amine Djebri**, *Distributed Artificial Intelligence for Linked Reviewable Data Management on the Semantic Web*, UNS, Andrea Tettamanzi, Fabien Gandon.

PhD in progress: **Michael Fell**, *Natural Language Processing of Song Lyrics*, UNS, Elena Cabrio, Fabien Gandon.

PhD in progress: **Raphaël Gazzotti**, *Modeling and Classification of Descriptions to Assist Decision Making*, UNS & SynchroNext, Catherine Faron Zucker, Fabien Gandon.

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**, *Mobile Access for the Web of Data*, Fabien Gandon, Pascal Molli and Moussa Lo, UGB, UNS.

PhD in progress: **Vorakit Vorakitphan**, *Argumentation and Emotions Emotion Detection with Adaptive Sentiment Analysis*, Elena Cabrio, Serena Villata, UCA.

Tobias Mayer attended:

- Advanced Course on Data Science & Machine Learning [0] (Siena, July 18-24)
- 3rd Summer School on Argumentation, [0] (Warsaw, September 06-10)

10.2.3. Juries

Catherine Faron Zucker was reviewer of the PhD thesis of

- Joe Raad, *Identity Management in Knowledge Graphs*, Université Paris Saclay, defended on 30/11/2018;

- Valentina Beretta, *Data veracity assessment: enhancing Truth Discovery using a priori knowledge*, Ecole des Mines Télécom IMT Mines Alès, defended on 30/10/2018;

- Landy Rajaonarivo, *Approche co-évolutive humain-système pour l'exploration de bases de données*, Ecole Nationale d'Ingénieurs de Brest (ENIB), defended on 29/06/2018;

- Manel Achichi, *Linking Heterogeneous Open Data – Application to the Musical Domain*, Université de Montpellier, defended on 15/02/2018.

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[0] https://acdl2018.icas.xyz/
[0] http://waw2018.argdiap.pl/summer-school/

Fabien Gandon was

- Jury Member for HDR Frédérique Segond, *Transformer les Données afin d'Etancher la Soif de l'Ere de la Connaissance*, University Grenoble Alpes, defended 17/01/2018
- Opponent for PhD Valentina Ivanova, *Fostering User Involvement in Ontology Alignment and Alignment Evaluation*, Linköping University Department of Computer and Information Science Division of Database and Information Techniques, defended 26/01/2018
- President for HDR Serena Villata, *Explainable, Trustable And Emphatic Artificial Intelligence From Formal Argumentation Theory To Argumentation For Humans*, University Côte d'Azur, defended 04/07/2018
- Reviewer for PhD Jörg Waitelonis, *Linked Data Supported Information Retrieval*, Karlsruher Institut für Technologie (KIT), defended 09/07/2018
- Reviewer for PhD Thesis Silvio Cardoso, *MAISA- Maintenance of Semantic Annotations*, Université Paris-Sud, LRI, and LIST Luxembourg, defended 30/11/2018
- President for HDR Michel Buffa, *Des wikis aux simulations d'amplificateurs de guitare à lampes, le Web plateforme universelle...*, University Côte d'Azur, defended 12/12/2018
- External Reviewer for PhD Thesis Luigi Asprino, *Engineering Background Knowledge for Social Robots*, University of Bologna, report sent the 15/12/2018
- Jury member for Tenure Track position for a Researcher in the field of Knowledge-based Systems in Healthcare at Bruno Kessler Foundation (FBK), 2018

Andrea Tettamanzi was:

- Jury member of the HDR theses of Giovanni Fusco, *Ville, Complexité, Incertitude. Enjeux de connaissance pour le géographe et l'urbaniste*, Université Côte d'Azur, February 5th;
- Jury member of the HDR theses of Chan Le Duc, *Raisonnement et révision pour des ontologies en logique de description*, Université Paris 8, November 29th.
- Chairman of the Jury for the PhD thesis of Abdoul Macina, UNS, December 17th on *SPARQL Distributed Query Processing over Linked Data*.
- Reviewer for the thesis of Victor Eduardo Fuentes, *Méta alignement méta heuristique*, whose defense was not authorized by Université du Québec, Montréal.

10.3. Popularization

10.3.1. Interventions

- Michel Buffa presented the WASABI ANR project during *La fête de la Science* in *L'esprit Sorcier* TV program [0].

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[0]https://youtu.be/-iExdePDsPA

ZENITH Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

- P. Valduriez: general chair of the VLDB Latin America Data Science Workshop (LaDAS@VLDB 2018)
- P. Valduriez: scientific chair, First Data Science School, IMSP, Django, Bénin

10.1.1.2. Member of the Organizing Committees

- A. Joly: organizing committee of the international conference CLEF 2018 and the chair of the LifeCLEF track, Avignon, sept. 2018 (http://clef2018.clef-initiative.eu/)
- A. Joly: organizing committee of the Floris'tic national workshop held in Montpellier, nov. 2018 (http://floristic.org/journeefloristic/)
- A. Liutkus: organizer of the 2018 Signal Separation Evaluation Campaign (https://sisec18.unmix.app/)
- F. Masseglia: finance chair of IEEE ICDE 2018 (https://icde2018.org)
- F. Masseglia: organization commitee of the Inria Science Days 2018 (https://www.inria.fr/en/news/news-from-inria/inria-science-days-2018)
- P. Valduriez: sponsor co-chair of IEEE ICDE 2018 (https://icde2018.org)
- P. Valduriez: sponsor co-chair of VLDB 2018 (https://vldb2018.lncc.br)

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

- A. Joly: area chair of ACM Multimedia 2018 (http://www.acmmm.org/2018)
- E. Pacitti: PC chair of the VLDB workshop on Big Social Data and Urban Computing (BiDU@VLDB 2018)

10.1.2.2. Member of the Conference Program Committees

- ACM/SIGAPP Symposium On Applied Computing (ACM SAC) Data Mining track, 2018: F. Masseglia
- IEEE International Conference on Data Mining (IEEE ICDM), 2018: F. Masseglia
- International Joint Conference on Artificial Intelligence (IJCAI), "Sister Conference Best Paper Track", 2018: F. Masseglia
- International Symposium on Methodologies for Intelligent Systems (ISMIS), 2018: F. Masseglia
- Pacific-Asia Conference on Advances in Knowledge Discovery and Data Mining (PAKDD), 2018: F. Masseglia
- European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (PKDD), 2018: F. Masseglia
- IEEE Artificial Intelligence and Knowledge Engineering (IEEE AIKE), 2018: F. Masseglia
- International Conference on Information Management and Big Data (SIMBig), 2018: F. Masseglia
- International Conference on Data Science, Technology and Applications (DATA), 2018: F. Masseglia

- International Conference on Very Large Data Bases (VLDB), 2018: R. Akbarinia
- International Workshop on Big Data Management in Cloud Systems, 2018: R. Akbarinia
- Int. Conf. on Extending DataBase Technologies (EDBT), 2019: E. Pacitti
- Int. Conf. on Multimedia Retrieval (ICMR), 2018: A. Joly
- Int. Conf. on Acoustics, Speech, and Signal Processing (ICASSP), 2018: A. Joly
- Int. Conf. on Computer Vision (CVPR), 2018: A. Joly
- Int. Conf. and Labs of the Evaluation Forum (CLEF), 2018: A. Joly
- European. Conf. on Information Retrieval (ECIR), 2019: A. Joly
- Conférence sur la Gestion de Données – Principes, Technologies et Applications (BDA 2018): F. Masseglia, E. Pacitti

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- VLDB Journal: P. Valduriez.
- Journal of Transactions on Large Scale Data and Knowledge Centered Systems: R. Akbarinia.
- Distributed and Parallel Databases, Kluwer Academic Publishers: E. Pacitti, P. Valduriez.
- Book series "Data Centric Systems and Applications" (Springer): P. Valduriez.
- Multimedia Tools and Applications: A. Joly.
- Plant Methods: C. Pradal.

10.1.3.2. Reviewer - Reviewing Activities

Reviewing in international journals :

- Distributed and Parallel Databases (DAPD): R. Akbarinia, E. Pacitti, P. Valduriez
- IEEE Transactions on Knowledge and Data Engineering (TKDE): R. Akbarinia, F. Masseglia
- VLDB Journal: R. Akbarinia
- ACM Transactions on Database Systems (TODS): A. Joly
- IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI): A. Joly
- Information Sciences: A. Joly
- Ecological Informatics: A. Joly
- Multimedia Tools and Applications Journal (MTAP): A. Joly
- Multimedia Systems: A. Joly
- Transactions on Information Forensics & Security: A. Joly
- International Journal of Computer Vision: 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
- Frontiers in Plant Science: C. Pradal

10.1.4. Invited Talks

- A. Joly: keynote talk on "Towards The Recognition of the World's Flora: When HPC Meets Deep Learning" at Digital Infrastructures 2018 on Oct. 10
- A. Joly: keynote talk on "The Recognition of the World's Flora" at Terratec 2018
- A. Liutkus: tutorial on music source separation at the International Symposium on Music Information Retrieval (ISMIR 2018).
- F. Masseglia: talk on "Massively Distributed Data Analytics", IRISA (Lacodam team), April 2018
- F. Masseglia: talk on "Massively Distributed Time Series Indexing and Querying", LIMOS, December 2018
- P. Valduriez: keynote talk on "Blockchain 2.0: opportunities and risks" on 29 may at Africatek 2018, Cotonou, Bénin, on 25 october at BDA 2018, Bucharest, Romania, and on 19 december at Colloquim COPPE/UFRJ, Rio de Janeiro
- C. Pradal: keynote talk on "OpenAlea : an open source project for plant modelling at different scales", August 2018, Crops in Silico Symposium, NCSA, Univ. Illinois, USA.
- C. Pradal: keynote talk on "OpenAlea : a modular platform for multiscale plant modelling", April 2018, EGU 2018, Vienna, Austria.

10.1.5. Leadership within the Scientific Community

- A. Joly: scientific manager of the LifeCLEF and Pl@ntNet research platforms
- A. Liutkus: elected member of the IEEE Technical Committee on Audio and Acoustic Signal Processing
- 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)
- P. Valduriez: President of the Steering Committee of the BDA conference

10.1.6. Scientific Expertise

- R. Akbarinia, F. Masseglia: reviewer for international programs (STIC AmSud, ECOS SUD).
- R. Akbarinia: expert for the French National Research Agency (ANR).
- A: Joly: reviewer for STIC AmSud international program
- F. Masseglia: scientific referent for Inria on the frame agreement with SAFRAN about "System Monitoring and Data Analytics"
- E. Pacitti: reviewer for STIC AmSud international program
- P. Valduriez: reviewer for STIC AmSud international program
- P. Valduriez: reviewer for NSERC (Canada)
- C. Pradal: reviewer for STIC AmSud international program
- C. Pradal: member of CSS EGBIP (Commissions Scientifiques Spécialisées) INRA

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, UM2

>IG4: Object-relational databases, 32h, level M1, Polytech' Montpellier, UM2

>IG5: Distributed systems, virtualization, 27h, level M2, Polytech' Montpellier, UM2

>Industry internship committee, 50h, level M2, Polytech' Montpellier

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

10.2.2. Supervision

PhD & HdR:

>PhD : Vitor Silva, Analysis of raw data from multiple data sources during the execution of computational simulations, started 2014, UFRJ, Brazil, June 2018. Advisors: Marta Mattoso (UFRJ), Daniel Oliveira (UFF), Patrick Valduriez

>PhD : Sakina Mahboubi, Privacy Preserving Top-k Query Processing over Outsourced Data, Univ. Montpellier, Nov. 21, 2018. Advisors: Reza Akbarinia, Patrick Valduriez.

>PhD : Djamel-Edine Yagoubi, Massive distribution for indexing and mining time series, Univ. Montpellier, March 12, 2018. Advisors: Reza Akbarinia, Florent Masseglia, Themis Palpanas (Univ Paris Descartes).

>PhD : Mehdi Zitouni, Parallel Itemsets Mining in Massively Distributed Environments, Univ. Tunis, Dec. 5, 2018. Advisors: Reza Akbarinia, Florent Masseglia, Sadok Ben Yahia (Univ Tunis).

>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: Christophe Botella, Large-scale Species Distribution Modelling based on crowd-srouced image streams, started Oct 2016, Univ. Montpellier. Advisors: Alexis Joly, François Munoz (IRD), Pascal Monestiez (INRA).

>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: Renan Souza, Massively Distributed Clustering, started 2015, UFRJ, Brazil. Advisors: Marta Mattoso (UFRJ), Daniel Oliveira (UFF), Patrick Valduriez.

>PhD in progress: Mathieu Fontaine, Alpha-stable models for signal processing, started 2016, IAEM, Nancy, France. Advisors: Roland Badeau (Telecom ParisTech), Antoine Liutkus.

10.2.3. Juries

Members of the team participated to the following PhD or HDR committees:

- R. Akbarinia: Sakina Mahboubi (Univ. Montpellier, advisor), Djamel-Edine Yagoubi (Univ. Montpellier, advisor)
- A. Joly: Lee Sue Han (Univ. of Malaya)
- F. Masseglia: Yann Dauxais (Univ. Rennes), Steeve Vanel-Siyou (Univ. Clermont-Ferrand, reviewer), Marc Plantevit (HDR, Univ. Lyon, reviewer), Djamel-Edine Yagoubi (Univ. Montpellier, advisor)
- E. Pacitti: Abdoul Macine (Univ. Nice, reviewer)
- P. Valduriez: Louis Jachiet (Univ. Grenoble), Ovidiu-Cristian Marcu (Univ. Rennes 1, reviewer), Vitor Silva (UFRJ, Rio de Janeiro, advisor), Sakina Mahboubi (Univ. Montpellier, advisor), Yania Molina Souto (LNCC, Rio de Janeiro, reviewer)

Members of the team participated to the following hiring committees:

- A. Joly: associate professor position, Univ. Toulon
- F. Masseglia: Inria ARP/SRP; full professor position, INSA, Lyon

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 (https://www.inria.fr/recherches/mediation-scientifique/actions-de-mediation-scientifique/presentation)

10.3.2. Articles and contents

Alexis Joly participated to the realization of a report on "Deep Learning and Agriculture" edited by the AgroTIC chair (https://www.agrotic.org/). He co-authored on article on data collection in citizen science projects [37].

10.3.3. Education

Teaching code is now officially in the school programs in France. Class'Code is a PIA project that aims at training the needed 300,000 teachers and professionals of education France. The project is a hybrid MOOC (both online courses and physical meetings). Florent Masseglia is co-author of the first course and scientific referent of the other courses.

Along with Class'Code, the association "La main à la pâte" has coordinated the writing of a school book on the teaching of computer science teaching, with Inria (Gilles Dowek, Pierre-Yves Oudeyer, Florent Masseglia and Didier Roy), France-IOI and the University of Lorraine. The book has been requested by and distributed to 15,000 readers in less than one month. The extension of this book for the French "Collège" has been released in 2017 with new activities and new scientific content.

F. Masseglia is giving a doctoral training at different doctoral schools in Montpellier, in order to train facilitators for helping teachers and people of the education world to better understand the "computational thinking". So far, 14 people have been trained.

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 December 11.

F. Masseglia is member of the pedagogic committee of "Edu'up", a project from France-IOI on learning code and computational thinking.

F. Masseglia gave a one day training session to school teachers in Créteil, on October 3.

Alexis Joly gave about 15 hours of professional training in the use of digital tools for environmental education (Pl@ntNet, ThePlantGame and Smart'Flore).

10.3.4. Interventions

Zenith participated to the following events:

- F. Masseglia co-organized the regional Code-Week events with the local network of media-library ("réseau des médiathèques de Montpellier Méditerranée Métropole").
- F. Masseglia is member of the project selection committee for "La fête de la science" in Montpellier.
- F. Masseglia animated a stand at the "semaine de la mémoire" event organized by Genopolys (September 20&21).
- F. Masseglia participated in a class visit, at Saussan, with Charles Torossian (co-author of the "Vallani-Torossian" report) and the rectrice, about code teaching.

10.3.5. Internal action

F. Masseglia organized, and participated to, a 2 days training session on the Poppy Ergo Jr robot (June 25&26).

10.3.6. 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, to be announced officially in January 2019, provides support for education to computer science from the history point of view.