

Inria

RESEARCH CENTER
Paris

FIELD

Activity Report 2019

Section Dissemination

Edition: 2020-03-21

1. ALMANACH Project-Team	4
2. ALPINES Project-Team	9
3. ANGE Project-Team	12
4. ANTIQUE Project-Team	19
5. ARAMIS Project-Team	23
6. CAGE Project-Team	28
7. CAMBIUM Project-Team	32
8. CASCADE Project-Team	35
9. COML Team	38
10. COMMEDIA Project-Team	40
11. DELYS Project-Team	44
12. DYOGENE Project-Team	49
13. EVA Project-Team	52
14. GANG Project-Team	57
15. GANG Project-Team	60
16. KOPERNIC Team	63
17. MAMBA Project-Team	65
18. MATHERIALS Project-Team	70
19. MATHRISK Project-Team	79
20. MIMOVE Project-Team	83
21. MOKAPLAN Project-Team	85
22. OURAGAN Project-Team	88
23. PARKAS Project-Team	90
24. PIR2 Project-Team	92
25. POLSYS Project-Team	96
26. PROSECCO Project-Team	98
27. QUANTIC Project-Team	101
28. REO Team	104
29. RITS Project-Team	107
30. SECRET Project-Team	111
31. SERENA Project-Team	116
32. SIERRA Project-Team	119
33. VALDA Project-Team	122
34. WHISPER Project-Team	125
35. WILLOW Team	128

ALMANACH Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- BS organised with Annie Rialland and Catherine Schnedecker the 2019 “Journée de la Société de Linguistique de Paris”, dedicated this year to “Corpus, analyses quantitatives et modèles linguistiques” (January 2019)
- DS was the co-chair of the SyntaxFest (Paris, 26-30 August 2019), a one-week event colocating a number of previously independent conferences and workshops on topics ranging from syntax to parsing and treebank development (including the UD workshop), as well as the co-chair of one of these conferences (Treebank and Linguistic Theories, TLT).
- KG was the co-chair of the International Conference on Dependency Linguistics, Depling 2019, another event of the SyntaxFest.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program/Scientific/Reviewing Committees

- BS: Member of the Program, Scientific or Reviewing Committee of the following conferences and workshops: EMNLP-IJCNLP 2019, ACL 2019, NAACL 2019
- LR: Member of the Program, Scientific or Reviewing Committee of the following conferences and workshops: CMLC 2019, eLex 2019, ISA-15, TOTh 2019, LDK 2019, DATeCH 2019, EIPub 2019
- KG: Member of the Program, Scientific or Reviewing Committee of the following conferences and workshops: ACL 2019, SyntaxFest 2019 including Depling and Workshop on Universal Dependencies, Workshop on Multilingual Surface Realization, 2019, CoNLL 2019, EMNLP-IJCNLP 2019, International Conference on Natural Language Generation (INLG) 2019, LAW XIII 2019 (The 13th Linguistic Annotation Workshop), Rencontre des Jeunes Chercheurs en Parole

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- LR: Member of the scientific committee of the French speaking DH journal *Humanités numériques*
- KG: Member of the scientific committee of the *Journal of Linguistics*

10.1.3.2. Reviewer - Reviewing Activities

- BS: Reviewer for *Traitement Automatique des Langues, wék^Wos*
- AC: Reviewer for *Digital Humanities 2020 - Intersections/Carrefours*

10.1.4. Invited Talks

- DS, invited talk, “Faire face au syndrome du Jabberwocky: Analyses morpho-syntaxiques en environnement hostile”, at the Société Linguistique de Paris (SLP) (Janvier 2019)
- BS, “Représentation et exploitation des informations lexicales”, CENTAL, Louvain-la-Neuve, Belgium (April 2019)
- BS, “Morphological complexities”, joint invited talk (with Géraldine Walther) at ACL 2019’s SIGMORPHON workshop, Florence, Italy (July 2019) [15]

- LR, “The TEI as a modeling infrastructure: TEI beyond the TEI realms”. Ringvorlesung Digital Humanities, Paderborn, Germany (July 2019).
- LR, “Where is the place of scientific lexicography in science?”, Lorentz workshop: The Future of Academic Lexicography, Leiden, The Netherlands (Nov. 2019)
- LR, “Digital transition of SSH”, LERU Information and Open Access (INFO) Policy Group meeting, Strasbourg, France (Dec. 2019)
- EVdIC, “Acquisition de connaissances à partir de corpus analysés syntaxiquement” Seminar at Nokia Bell Labs, France (June 2019)
- EVdIC, “Évolutions et pertinence des plongements lexicaux”, workshop on “Machine learning, données textuelles et recherche en sciences humaines et sociales”, ENS Lyon, France (Nov. 2019)
- Benjamin Muller, “Transfer Learning on an unseen North African Arabic Dialect”, Bar Ilan University, Israel (24 Nov 2019)
- Mohamed Khemakhem was invited to the “ELEXIS Observers” event to give a talk ⁰ about structuring historical dictionaries and the use of GROBID-Dictionaries, Austrian Academy of Sciences, Austria (February 2019)
- KG, “Instant treebanks: Tools and methods to quickly build syntactically annotated corpora from scratch”, Workshop “Annotation of non-standard corpora (2019)”, University of Bamberg, Germany in September.

10.1.5. Training

- Mohamed Khemakhem chaired and tutored the GROBID-Dictionaries workshop series:
 - ELEXIS workshop - Berlin (March 2019)
 - Atelier de formation CollEx-Persée - Paris (September 2019)
- Following the aforementioned ‘Symposium on Naija’, a Master Class of one week was organised in June 2019 at the ARCIS institute of the University of Ibadan, Nigeria, on “Crowd-sourcing Web Corpora of Nigerian Languages” taught by KG and Slavomír Čéplö (from the Austrian Academy of Sciences).

10.1.6. Leadership within the Scientific Community

An important aspect of ALMANACH’s work relates to standardisation initiatives, especially within the ISO TC37 committee on language and terminology. Laurent Romary is the President of this committee and the convenor of its working group TC37/SC4 on lexical resources, within which he and a number of other ALMANACH members (Jack Bowers, Mohamed Khemakhem, Benoît Sagot, Éric de La Clergerie) have responsibilities (as project leaders or co-leaders). Most of them are related to the revision as a multi-part standard of ISO 24613 ([Lexical Markup Framework](#), [14]), the first part of which was published in June 2019.

ALMANACH members have also played a key role in developing the Standardisation Survival Kit, an [online tool hosted by Huma-num](#) which focuses on giving researchers access to standards in a meaningful way by using research scenarios which cover all the domains of the Humanities, from literature to heritage science, including history, social sciences, linguistics, etc. We have published one publications on this topic in 2019 [64], following numerous ones over the last few years.

Other examples of ALMANACH’s leadership within the scientific community are the following:

- LR: Member of the ELEXIS Interoperability and Sustainability Committee (ISC) — ELEXIS is the European Lexicographic Infrastructure (<https://elex.is>)
- EVdIC: Chairman of the ACL special interest group SIGPARSE (ended in 2019)
- BS: Member, Deputy Treasurer and Member of the Board of the Société de Linguistique de Paris
- DS: Board member of the French NLP society (Atala, 2017-2020), Vice-President of the Atala and program chair of the “journée d’études”.
- DS: Member of the ACL’s BIG (Broad Interest Group) Diversity group.
- Mohamed Khemakhem: Member of the DARIAH Working Group “Bibliographical Data”

⁰http://videolectures.net/elexisobserver2019_khemakhem_dictionaries/

10.1.7. Scientific Expertise

- LR is an advisor for scientific information to Inria's deputy CEO for Science.

10.1.8. Research Administration

- BS is a member of Inria Paris's Scientific Committee ("Comité des Projets") and of its Board ("Bureau du Comité des Projets"), and a member of the International Relations Working Group of Inria's Scientific and Technological Orientation Council (COST-GTRI)
- BS is the Deputy Head (and former Head) of the research strand on Language Resources of the LabEx EFL (Empirical Foundations of Linguistics), and is therefore a deputy member of the Governing Board of the LabEx
- LR is the President of the scientific committee of ABES (Agence Bibliographique de l'Enseignement Supérieur), and a Member of the Text Encoding Initiative board

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: Benoît Sagot (with Emmanuel Dupoux), "Speech and Language Processing", 20h, M2, Master "Mathématiques, Vision, Apprentissage", ENS Paris-Saclay, France
- Master: Loïc Grobol, "Introduction à la fouille de textes", 39h, M1, Université Sorbonne Nouvelle, France
- Master: Loïc Grobol, "Langages de script", 39h, M2, INaLCO, France
- Eq. Master: Clémentine Fourier, "Module TDLog - Techniques de Développement Logiciel" (computer science opt-in course in Python), 18h, M1 and M2, École des Ponts ParisTech, France
- Eq. Bachelor second year: Gaël Guibon, "Introduction to Python and Programming" (for business school students and english speakers) 25h, International BBA 2, ESSEC Business School, France
- Master: Alix Chagué, "Humanités Numériques", 18h, M1, Institut d'études culturelles et internationales (IECI), Université Versailles-Saint-Quentin-en-Yvelines, France.
- Master: Alix Chagué, "Introduction à LaTeX", 5h, M1, Institut d'études culturelles et internationales (IECI), Université Versailles-Saint-Quentin-en-Yvelines, France.
- Master: Alix Chagué, "Introduction à Linux", 5h, M1, Institut d'études culturelles et internationales (IECI), Université Versailles-Saint-Quentin-en-Yvelines, France.
- Licence: Pedro Ortiz, "Mathématiques discrètes", 40h, L2, Licence de Sciences et Technologies, Faculté de Sciences et Ingénierie, Sorbonne Université, Paris, France.
- Licence: Mathilde Regnault, "Informatique et industries de la langue", 20h, L2, Licence Sciences du langage, Université Sorbonne nouvelle - Paris 3, Paris, France.

10.2.2. Supervision

PhD in progress: Mohamed Khemakhem, "Structuration automatique de dictionnaires à partir de modèles lexicaux standardisés", September 2016, Paris Diderot, supervised by Laurent Romary

PhD in progress: Loïc Grobol, "Coreference resolution for spoken French", "Université Sorbonne Nouvelle", started in Oct. 2016, supervised by Frédéric Landragin (main supervisor), Isabelle Tellier[†] (main supervisor), Éric de La Clergerie and Marco Dinarelli

PhD in progress: Jack Bowers, "Technology, description and theory in language documentation: creating a comprehensive body of multi-media resources for Mixtepec-Mixtec using standards, ontology and Cognitive Linguistics", started in Oct. 2016, EPHE, supervised by Laurent Romary

PhD in progress: Axel Herold, "Automatic identification and modeling of etymological information from retro-digitized dictionaries", October 2016, EPHE, Laurent Romary

PhD in progress: Mathilde Regnault, “Annotation et analyse de corpus hétérogènes”, “Université Sorbonne Nouvelle”, started in Oct. 2017, supervised by Sophie Prévost (main supervisor), Isabelle Tellier[†], and Éric de la Clergerie

PhD in progress: Louis Martin, “Text Simplification”, June 2018, Facebook & Sorbonne Université (“CIFRE” PhD), supervised by Benoît Sagot and Éric de La Clergerie

PhD in progress: Pedro Ortiz, “Automatic Enrichment of Ancient Dictionaries”, October 2018, Sorbonne Université, supervised by Laurent Romary and Benoît Sagot

PhD in progress: Benjamin Muller, “Multi-task learning for text normalisation, parsing and machine translation”, October 2018, Sorbonne Université, supervised by Benoît Sagot and Djamé Seddah

PhD in progress: José Carlos Rosales, supervised by Guillaume Wisniewski (Limsi) and Djamé Seddah, October 2018

PhD in progress: Clémentine Fourier, “Neural approaches to the modelling of phonetic evolution”, October 2019, EPHE (Inria fellowship), Benoît Sagot

10.2.3. *Juries*

- BS: reviewer (“rapporteur”) of the PhD committee for Nourredine Alliane at Université Paris 8 on 17th May (Title: “Évaluation des représentations vectorielles de mots”; Supervisor: Gilles Bernard)
- BS: reviewer of the PhD committee for Tamara Álvarez López at Université de Vigo, Spain, on 29th November (Title: “Sentiment analysis in social media contents using natural language processing techniques”; Supervisors: Enrique Costa Montenegro and Milagros Fernández Gavilanes)
- BS: member of the PhD committee for Hazem Al Saied at Université de Lorraine on 20th December (Title: “Analyse automatique par transitions pour l’identification des expressions polylexicales”; Supervisors: Matthieu Constant and Marie Candito)
- LR: Reviewer of the PhD committee for Elina Leblanc, Université de Grenoble Alpes (title: “Bibliothèques numériques enrichies et participatives : utilisateurs, services, interfaces”, Supervisors: Elena Pierazzo and Hervé Blanchon)
- EVdIC: Reviewer of the PhD committee for Diana Nicoleta Popa, Université de Grenoble Alpes (title: “Vers des représentations contextualisées de mots”, Supervisor: Éric Gaussier)
- KG: reviewer of the PhD committee for Mohammed Galal at the University of Ain Shams, Egypt, on January 8 (Title: “Les constructions exceptives du français et de l’arabe : syntaxe et interface sémantique-syntaxe”; Supervisor: Sylvain Kahane in codirection with Dina El-Kassas)
- KG: President of the PhD committee for Marie-Amélie Botalla at the Sorbonne Nouvelle on May 14 (Title: “Modélisation de la production des énoncés averbaux : le cas des compléments différés”, Supervisors: Jeanne-Marie Debaisieux and Sylvain Kahane)

10.3. Popularization

10.3.1. *Articles and contents*

- BS was interviewed by David Larousserie, from the French daily newspaper Le Monde, about the release of CamemBERT, in October and December 2019. This resulted in an article in the newspaper, accessible [here](#) (subscription required).
- LR was interviewed the radio France Culture about the release of CamemBERT, in October 2019. The interview was aired on the radio.
- AC has taken in charge the content management of the Time Us project’s research blog since April 2019, which aims at presenting sources, good practices and results used and elaborated by all the project members.

10.3.2. *Interventions*

- Welcoming of schoolchildren at Inria Paris (half a day with ALMANaCH members within an one-week-long stay; December 2019)
- Clémentine Fourrier co-organised the Young Women Mathematician Days (Inria Paris edition): 2 days of talks, mathematical animations and speed meetings with women scientists or engineers at the Inria Paris center, for high school girls
- Clémentine Fourrier was a speaker at the ESPCI highschool students summer school, to introduce the different jobs of computer science engineer to high school girls, in research and the industry, and animated an introductory software development workshop in Python over an afternoon
- Alix Chagué was the speaker for 6th workshop organised by the Alumni Association of the École nationale des chartes's Masters (ADEMEC), to introduce the software Transkribus and guidelines for text extraction (March 2019).

10.3.3. Internal action

- BS presented the January 2019 edition of the “demi-heure de science” at Inria Paris, whose target audience is researchers from all Inria Paris teams
- BS presented the June 2019 edition of Inria Paris’ “my team in 180 seconds” event, whose target audience is both researchers and non-scientific Inria personnel
- CF presented softwares and good practices (Docker, GitLab and version control, Diverting Gitlab to create a small website) at the Inria developer meetup, whose target audience is both researchers and engineers.

ALPINES Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Organization of the kick-off meeting of ERC Synergy project EMC2 by E. Cances, L. Grigori, Y. Maday, and J. P. Piquemal. For more details see the [website](#).
- Organization of Horizon Maths 2019 day on Mathematics and Chemistry by E. Cances, L. Grigori, Y. Maday, and J. P. Piquemal, december 3 2019. For more details see the [website](#).

10.1.2. Scientific Events: Selection

- Gene Golub Summer school on [High Performance Data Analytics](#), June 17-28, 2019 in Aussois, France. Co-organized by L. Grigori with M. Knepley, O. Schenk, R. Vuduc. Sponsored by SIAM through an endowment from the estate of Gene Golub.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Laura Grigori, March 2014 – current. Member of the editorial board for the SIAM book series Software, Environments and Tools. See <http://bookstore.siam.org/software-environments-and-tools/>.
- Laura Grigori, January 2016 – current. Associate Editor, SIAM Journal on Scientific Computing.
- Laura Grigori, January 2017 – current. Associate Editor, SIAM Journal on Matrix Analysis and Applications.
- Laura Grigori, January 2016 – current. Editorial board, Numerical linear algebra with applications Journal, Wiley.
- Laura Grigori, October 2019 – current. Editorial board, Calcolo Journal, Springer.
- Frédéric Nataf, January 2015 – current, Editorial board, Journal of Numerical Mathematics, de Gruyter.

10.1.4. Invited Talks

- Laura Grigori was
 - Invited speaker, Advanced Solvers for modern Architectures Symposium, November 2019, Munster Germany.
 - Keynote speaker, workshop *Parallel solution methods for systems arising from PDEs*, September 2019, CIRM France.
 - Invited plenary speaker, SIAM Conference on Computational Science and Engineering (CSE19), February 2019, Washington USA, <http://www.siam.org/meetings/cse19/>.
- S. Hirstoaga gave a talk at the seminar of Laboratoire Jacques-Louis Lions, March 2019, Paris.
- Frédéric Nataf was invited speaker at RMR 2019: Rencontres Mathématiques de Rouen 2019, juin 2019, Rouen, France.
- Frédéric Hecht was
 - invited speaker at HPCSE 2019: HIGH PERFORMANCE COMPUTING IN SCIENCE AND ENGINEERING, University of Ostrava, Czech.

- invited speaker at RMR 2019: Rencontres Mathématiques de Rouen 2019, juin 2019, Rouen, France.
- invited speaker at COUPLED 2019: june 2019, Sigtes, Spain.
- invited speaker, workshop *Parallel solution methods for systems arising from PDEs*, September 2019, CIRM France.

10.1.5. Leadership within the Scientific Community

- Laura Grigori, member elected of SIAM Council, January 2018 - December 2020, the committee supervising the scientific activities of SIAM. Nominated by a Committee and elected by the members of SIAM.
- Laura Grigori, member of the **PRACE** (Partnership for Advanced Computing in Europe) Scientific Steering Committee, September 2016 - current.
- Laura Grigori and Frédéric Hecht are coordinators of the High Performance in Scientific Computing Major of second year of Mathematics and Applications Master, Sorbonne University.

10.1.6. Scientific Expertise

- Laura Grigori: November 2015 - current, expert to the Scientific Commission of IFPEN (French Petroleum Institute). Evaluation of research programs, PhD theses, work representing a total of 5 days per year.

10.1.7. Research Administration

- Laura Grigori was vice-president of the committee CE46 of ANR, September 2017 - July 2019.
- Frédéric Nataf was president of the committee "Mathématiques et leurs interactions" (CE40) at ANR, September 2016 - August 2019.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master 1: Xavier Claeys, Initiation to C++, 36 hrs of programming tutorials in C++, SU.

Master 1: Xavier Claeys, Computational Linear Algebra, 32 hrs of lectures, SU.

Master 1: Xavier Claeys, Approximation of PDEs, 24 hrs of programming tutorials in Python, SU.

Master 2: Laura Grigori, Winter 2019, Participation in the course on High Performance Computing given at Sorbonne University, Computer Science, intervention for 8 hours per year.

Master 2: Laura Grigori, Course on *High performance computing for numerical methods and data analysis*, https://who.rocq.inria.fr/Laura.Grigori/TeachingDocs/UPMC_Master2/HPC_MN_DA.html, Master 2nd year, Mathematics & Applications, Sorbonne University, 24 hours per year.

Licence 1: S. Hirstoaga, analysis and matrix calculus, 24 HETD, INSEP, Sorbonne University.

Master 1: Frédéric Hecht, Initiation au C++, 24hrs, SU, France

Master 2: Frédéric Hecht, Des EDP à leur résolution par la méthode des éléments finis (MEF), 36hrs, M2, SU, France

Master 2: Frédéric Hecht, Numerical methods for fluid mechanics, 10hrs, SU, France

Master 2: Frédéric Hecht, Calcul scientifique 3 / projet industriel FreeFem++, 28hrs, M2, SU, France

Master 2: Frédéric Hecht, Ingénierie 1 / Logiciel pour la simulation (FreeFem++), 21hrs, SU, France

Master 2: Frédéric Hecht, Ingénierie 2 / Projet collaboratif, 21hrs, SU, France

Cours CIMPA: Frédéric Hecht, Modélisation, Analyse mathématique et calcul scientifique dans la gestion des déchets ménagers, 12h, Kenitra, Maroc

Master 2: Frédéric Nataf, Course on Domain Decomposition Methods, Sorbonne University.

10.2.2. Supervision

PhD: Sebastien Cayrols, Minimizing communication for incomplete factorizations and low-rank approximations on large scale computers, Sorbonne Université, February 2019, advisor Laura Grigori.

PhD: Zakariae Jorti, Fast solution of sparse linear systems with adaptive choice of preconditioners, Sorbonne University, September 2019, advisor Laura Grigori.

PhD: Olivier Tissot, Solving linear systems on massively parallel architectures, Sorbonne University, January 2019, advisor Laura Grigori.

PhD: Julien Coulet, Sorbonne University, Méthode des Eléments Virtuels pour le calcul de la déformation mécanique couplée aux écoulements en milieux poreux, October 2019, advisors Frédéric Nataf, Vivette Girault (SU), Isabelle Faille (IFPEN) and Nicolas Guy (IFPEN).

PhD: Rim El Dbaissy, Sorbonne University, Discrétisation du problème de couplage instationnaire des équations de Navier- Stokes avec l'équation de la chaleur, Mars 2019, advisors Tony Sayah, Frédéric Hecht.

PhD in progress: Matthias Beaupere, since October 2019 (funded by ERC Synergy EMC2), advisor Laura Grigori.

PhD in progress: Igor Chollet, since October 2017 (funded by ICSD), advisors Xavier Claeys, Pierre Fortin, Laura Grigori.

PhD in progress: Thibault Cimic, since October 2017 (funded by ANR B3DCMB), advisor Laura Grigori.

PhD in progress: Pierre Marchand, since October 2016 (funded by ANR NonLocalDD project), advisors Xavier Claeys and Frédéric Nataf.

PhD in progress: Thanh Van Nguyen, since November 2017 (funded by ANR CinePara), advisor Laura Grigori.

PhD in progress: Jeremy Weisman, since October 2019 (funded by ERC Synergy EMC2), advisors Laura Grigori and J. P. Piquemal.

PhD in progress: Houssam Houssein, since January 2018 (CIFRE, funded by Airthium), advisor Frédéric Hecht.

10.2.3. Juries

- Xavier Claeys was reviewer and member of the jury for the PhD thesis of Federica CAFORIO, defended at Université Paris-Saclay, on January the 24th 2019.
- Xavier Claeys was member of the jury for the PhD thesis of Yohannes Tjandrawidjaja, defended at Université Paris-Saclay on December the 17th 2019.
- Laura Grigori was a member of the jury of Phd defense of Oleg Balabanov, September 2019.
- Laura Grigori was president of the jury of the HDR habilitation of Sever Hirstoaga, Université de Strasbourg, April 2019.
- Laura Grigori was a member of the jury of HDR habilitation of Stéphanie Chaillat, Examineur, ENSTA, March 2019.
- Laura Grigori was a member of the jury of Phd defense of Fabio Verbosio, USI Lugano, February 2019.
- Frédéric Hecht was president of the HDR defense of Mourad Ismail, 2019, LIPhy, Université Grenoble Alpes.
- Frédéric Hecht was president of the PhD defense of Alexandre This, 2019, Sorbonne University.
- Frédéric Hecht was president of the PhD defense of Zakariae Jorti, 2019, Sorbonne University.
- Frédéric Hecht was president of the PhD defense of Sebastien Cayrols, 2019, Sorbonne University.
- Frédéric Nataf was president of the PhD defense of Rim ALDBAISSY, 2019, Sorbonne University.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Laura Grigori was vice-president of the Evaluation Commission of Inria, March 2018 - August 2019.

ANGE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

Some members of ANGE were in the organizing committees of scientific events.

- J. Sainte-Marie took part of the organization of the 7th EGRIN summer school that took place at Le Lioran from 24th to 27th of June and that gathered 40 researchers ⁰.
- J. Sainte-Marie belongs to the "Groupe de travail Recherche et développement durable" at french ministry of research.
- Y. Penel and N. Aguillon organize the monthly ANGE seminar ⁰. The speakers were : F. Allaire, M. Peruzzetto (IPGP), L. Boittin, S. Junca (Nice), H. Martin, A. Leprevost, M. Parisot, C. Donadello (Besançon), A. Lesieur, M. Rigal, M. Ancellin (Sorbonne Univeristé).
- J. Salomon co-organises the LJLL-Inria meetings ⁰ (twice a month).
- M. Parisot and J. Salomon organized the conference "EmrSim2019" ⁰ from 2nd to 4th July.
- Y. Penel and J. Sainte-Marie organized the session "challenges in geosciences" in the framework of Tarantola days ⁰ from 6 to 7 June.
- C. Guichard co-organized the "Journée d'Accueil des nouveaux recrutés en Mathématiques", at IHP ⁰
- E. Godlewski is the president of the CFEM (commission française pour l'enseignement des mathématiques).
- E. Godlewski took part of the organization of the 50th birthday of the "laboratoire J-L. Lions" by giving a talk "Le rayonnement de l'école Lions. Vers une politique scientifique".

10.1.2. Journal

The summary of the reviewing activities of the team is given in the next table.

Member	Journals
JS	CRAS, SIAM SISC, JCP
CG	Computers and Mathematics with Applications, Numerische Mathematik
EG	M2AN, JCP, AIDE, JEP
MP	Journal of Hydraulic Research, DCDS, JCP, Journal of Computational Science
VM	JCP
JSM	M2AN, JCP, Applied Mathematical Modeling

⁰<https://indico.math.cnrs.fr/event/4391/>

⁰<https://team.inria.fr/ange/gdt-slides/>

⁰<https://project.inria.fr/rencontresljl/fr/>

⁰<https://emrsim2019.sciencesconf.org/>

⁰<https://ange-geophysics.sciencesconf.org/>

⁰<http://postes.smai.emath.fr/apres/accueil/>

10.1.3. Invited Talks

Member	Conference	Location	Date
JS	Colloque d'ouverture 50 ans du LJLL	Roscoff	4-8/3
NA	Séminaire Centrale Paris	Saclay	05/12
NA	journée de clôture MANON	Paris	March
NA	journée Tarantola : défis en géosciences	Paris	June
VD	CEMRACS	Marseille	13/08
VD	Congrès SMAI	Guidel	16/05
VD	EGRIN	Le Liorant	25/06
CG	journée Tarantola : défis en géosciences	Paris	June
FA	GdT ANGE	Inria Paris	23/01
YP	séminaire de l'équipe ACSIOM	Montpellier	19/02
YP	séminaire d'analyse appliquée	Amiens	14/01
YP	Congrès SMAI	Guidel	16/05
YP	Ecole EGRIN	Le Liorant	24/06
YP	ICIAM	Valencia (Spain)	16/07
MP	séminaire de l'IRMAR	Rennes	28/02
MP	Cours sur les modèles dispersif	Aachen	22-24/10
MP	Séminaire d'équipe d'analyse numérique	Aachen	31/10
VM	Nommer, modéliser, représenter le hasard dans les arts et les sciences	Arras	15/03
VM	AI for Climate	Paris	20/09
VM	Séminaire du laboratoire Jacques-Louis Lions	Paris	25/10
VM	AI, data and models for sustainable development, COP25	Madrid	3/12
JSM	"Geophysical flows - From hydrostatic to non-hydrostatic models"	Malaga	22/09

10.1.4. Research Administration

- J. Sainte-Marie is now "Adjoint au Directeur Scientifique" of Inria, in charge of the topic "Sciences de la planète, de l'environnement et de l'énergie".
- J. Salomon belongs to Inria's "Commission des emplois scientifiques".

10.2. Teaching - Supervision - Juries**10.2.1. Teaching****10.2.2. Supervision and Jury**

Table 3. Teaching (1/2)

Member	Topic	Duration	Level	Institution	Type (CM,TD,TP)
JS	Méthodes numériques pour des modèles incluant des EDP	45	M2	Université d'Abomey-Calavi, Bénin	CM
JS	Méthodes numériques pour des modèles incluant des EDP	45	M2	Univ. Paris-Dauphine	CM
VD	Mathématiques appliquées	32	L3	Polytech Sorbonne	TP
VD	Traitement numérique	14+22	M1	Polytech Sorbonne	CM+TP
VD	Initiation Latex	4	L3	Polytech Sorbonne	CM
LL	Méthodes numériques pour les équations différentielles	24	L3	Sorbonne Université	TP
LL	Mathématiques pour les études scientifiques I	102	L1	Sorbonne Université	TD
LL	Mathématiques pour DU RESPE S2	12	L0	Sorbonne Université	CM+TD
LL	Mathématiques pour DU RESPE S1	10	L0	Sorbonne Université	CM+TD
NA	Topologie et calcul différentielle	111	L2	Sorbonne Université	CM+TD
NA	Projet	15	L3	Sorbonne Université	TD
CG	Fondements des méthodes numériques	58	M1	SU	TP
CG	Méthodes numériques	31	M2	SU	CM+TD
CG	Co responsable de la majeure Ingénierie Mathématiques pour l'Entreprise		M2	SU	
BDM	Analyse et TP Python Sage algèbre et analyse	72	L2	Univ. Corse	C+TD+TP
BDM	Analyse numérique matricielle	54	L3	Univ. Corse	C+TD+TP
EG	Modèles hyperboliques d'écoulements complexes dans le domaine de l'énergie	10	M2	SU	CM
NB	Analyse2	15	L1	Paris13	TD
NB	Analyse3: Intégrales et séries	30	L2	Paris13	TD

Table 4. Teaching (2/2)

Member	Topic	Duration	Level	Institution	Type (CM,TD,TP)
JS	VM	Simulation de la dispersion atmosphérique	3	M2	ENPC
VM	Assimilation de données pour la géophysique	7	M2	ENPC	TP
JH	Méthodes numériques pour les équations différentielles	25	L3	Sorbonne Université	TP
JH	Analyse Appliquée	40	L3	Sorbonne Université	TD
EA	Equations différentielles	30	L3	Paris13	TD
EA	Optimisation différentiable	30	M1	Paris13	TD
EA	Mécanique des fluides	18	M1	Paris13	CM
EA	Calcul scientifique	30	L2	Paris13	CM+TD
YP	Equations différentielles	15	L2	Paris 13	CM+TD

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- J. Salomon is a member of the "Commission Mentorat" in view of introducing a mentoring procedure in Inria-Paris,
- Y. Penel and C. Guichard belong to the "Groupe de travail Développement Durable d'Inria Paris",
- J. Sainte-Marie took part of the committee MakeSenSe, that produced the report [14].

10.3.2. Education

- Congrès MATH.en.JEANS (CentraleSupélec, Modélisation de certains écoulements),
- E. Godlewski and J. Salomon dealt with secondary-school pupils in the framework of observation training course at LJLL and Inria, respectively,
- N. Aguillon was in the organizing committee of "Mathematic Park",
- N. Aguillon was in the organizing committee of "Cycle SMAI-Musée des arts et métiers",
- J. Salomon co-organized the stand "Logiciel Libre" at the "Salon Culture et Jeux mathématiques, 2019".

10.3.3. Interventions

- J. Sainte-Marie organized a round-table discussion about "Mathématiques et environnement" at the "Forum Emploi-Math 2019" (14/11).
- J. Sainte-Marie organized a debate "la sobriété numérique" at "cité des Sciences et de l'industrie" (15/11).

Table 5. Supervision of thesis and intership (1/2)

Member	Other advisors	Type	Student	Institution	Period	Title
JS		PhD	Sebastian Reyes-Riffo	Paris-Dauphine	2016-2019	Méthodes numériques pour les énergies marines renouvelables
JS, VM		PhD	Antoine Lesieur	Inria	2017-2020	Estimation d'état et modélisation inverse appliquées à la pollution sonore en milieu urbain
JS		PhD	Nadia Jbili	Paris-Dauphine	2016-2019	Contrôle optimal pour la résonance magnétique nucléaire
JS, JSM		PhD	Liudi Lu	Inria	2018-2021	Approches Lagrangiennes pour la modélisation et l'optimisation du couplage hydrodynamique-photosynthèse
JSM, VM		PhD	Frédéric Allaire	Inria	2017-2020	Quantification du risque incendie par méta-modélisation de la propagation de feux de forêt
YP, CG, JSM		PhD	Virgile Dubos	SU	2017-2020	Numerical methods for the elliptic/parabolic parts of non-hydrostatic fluid models
NA, EA, MP		PhD	Nelly BOULOS	Paris 13	2018-2021	Modélisation et simulation numérique de la dynamique d'un aquifère érodable
VM	Isabelle Herlin	PhD	Ngoc Bao Tran Le	Inria	2016-2019	Uncertainty quantification based on model reduction for atmospheric dispersion
VM		Post Doc	Janelle Hammond	Inria	2017-2020	Uncertainty quantification, metamodeling and data assimilation applied to urban air quality
EA,MP,JSM		PhD	Léa Boittin	inria	2016-2019	Modelling, analysis and efficient numerical resolution for erosion processes

Table 6. Supervision of thesis and intership (2/2)

NA		Stage M2	Mathieu Rigal	UPMC	2019	Schéma exact sur les chocs isolés pour les équations de St Venant avec topographie
NA, JSM	Nathalie Ayi	PhD	Mathieu Rigal	UPMC	2019-2022	Low Froude regime and dispersive effects in kinetic formulations
BDM, JSM		Stage M2	Chourouk El Hassanieh	Inria	04-08/2019	Multilayer Shallow Water Equations: Derivation, Properties, and Well Posedness
BDM, JSM	Samer Israwi	PhD	Chourouk El Hassanieh	Inria	2019-2022	Mathematical and numerical analysis of some dispersive models in fluids mechanics

Table 7. Participation to committees

Initiales	Mois	Type (PhD, HdR)	Rôle (rapp., prés., mbre)	Prénom Nom candidat	Etablissement	Titre
JS	Novembre	PhD	rapporteur	Pierre-Yves Wuillaume	Ecole Centrale de Nantes	Simulation numérique des opérations d'installation pour les fermes d'éoliennes offshore
NA	juillet	PhD	examinatrice	Mostafa Kadiri	Normandie Université	Optimisation de forme et applications aux ouvrages hydrauliques
CG	mars	PhD	examinatrice	Patrik Daniel	SU et Inria	Adaptive hp-finite elements with guaranteed error contraction and inexact multilevel solvers
CG	septembre	PhD	examinatrice	Pierrick Quemar	Paris 13 et EDF	MODELING AND NUMERICAL ANALYSIS OF FREE SURFACE FLOWS
CG	novembre	PhD	invitée	Karine LAURENT	IFPEN et Univ. Paris Saclay	Étude de nouveaux schémas numériques pour la simulation des écoulements à rapport de mobilités défavorable dans un contexte EOR
JSM	novembre	PhD	examinateur	Sebastian Reyes Riffo	PSL	Méthodes mathématiques pour l'extraction d'énergie marine
JSM	décembre	PhD	rapporteur	H. Boukili	univ. Marseille	Schémas de simulation d'un modèle à trois phases immiscibles pour application à l'explosion vapeur
EG	novembre	thèse (PhD)	présidente	Jean-François Abadie	SU	Estimations fiables d'une fonction et de ses dérivées & Étude théorique et numérique d'un problème de "shape from shading"
YP	novembre	PhD	rapporteur	Victor Osoro	Univ. Concepcion, Chile	On multilayer shallow water systems for polydisperse sedimentation

ANTIQUE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

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

10.1.1.2. Member of the Organizing Committees

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

10.1.2. Event organization

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

10.1.3. Scientific Events: Selection

10.1.3.1. Member of the Conference Program Committees

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

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

10.1.3.2. Reviewer

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

10.1.4. Journal

10.1.4.1. Member of the Editorial Boards

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

10.1.4.2. Reviewer - Reviewing Activities

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

10.1.5. Invited Talks

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

10.1.6. Leadership within the Scientific Community

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

10.1.7. Scientific Expertise

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

10.1.8. Research Administration

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

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence:

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

Master:

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

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

Doctorat:

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

10.2.2. Supervision

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

10.2.3. Juries

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

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

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

10.3.2. Articles and contents

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

10.3.3. Creation of media or tools for science outreach

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

ARAMIS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- S. Durrleman was general chair of the international Neuro Open Science Workshop (ICM, Paris)

10.1.1.2. Member of the Organizing Committees

- N. Burgos organized the international workshop on Simulation and Synthesis in Medical Imaging (SASHIMI) 2019, a satellite workshop of MICCAI 2019.
- N. Burgos organized a PRACE training event (Introduction to machine learning in Python with Scikit-learn)
- F. De Vico Fallani co-organized the Network Neuroscience satellite within the NetSCI conference.
- S. Durrleman co-organized the international workshop on the Mathematical Foundations of Computational Anatomy (MFCA), a satellite workshop of MICCAI 2019.
- S. Durrleman co-organized the workshop GEANT (GÉstion et pArtage de données en Neuroinformatique), Marseille Medical School.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- O. Colliot served as Program Committee member for the international conference SPIE Medical Imaging (San Diego, USA, 2019) and for the international workshop PatchMI (Shenzen, China, 2019).
- O. Colliot served as Award Committee member for the international conference of the Organization for Human Brain Mapping (OHBM, meeting held in Rome, Italy, 2019).
- F. De Vico Fallani served as Program Committee member for the international conference Netsci, CompleNet, Complex networks.
- S. Durrleman served as Program Committee member for the international workshop Medical Imaging meets NeurIPS.

10.1.2.2. Reviewer

- O. Colliot acted as a reviewer for the international conferences SPIE Medical Imaging, Annual meeting of the Organization for Human Brain Mapping (OHBM) and the international workshop PatchMI.
- N. Burgos acted as a reviewer for the international conference Annual meeting of the Organization for Human Brain Mapping (OHBM), for the international workshop on Simulation and Synthesis in Medical Imaging (SASHIMI), and for the GRETSI symposium of signal and image processing.
- F. De Vico Fallani acted as a reviewer for the international conference on Brain-computer interfaces (Graz BCI) and the international conferences CompleNet, Netsci, Complex Networks.
- S. Durrleman acted as a reviewer for Information Processing in Medical Imaging (IPMI) and MIC meets NeurIPS.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- O. Colliot is a member of the Editorial Board of the journal Medical Image Analysis (Elsevier).
- F. De Vico Fallani is a member of the Editorial Board of PLoS One, Brain Topography, IEEE TNSRE.
- S. Epelbaum is member of the editorial board for the Medecine Cognition et Vieillessement Scientific Journal.
- S. Durrleman is member of the editorial board of IEEE Transactions on Medical Imaging (TMI), and Neuron, Behavior and Data Analysis (Scholastica)

10.1.3.2. Reviewer - Reviewing Activities

- O. Colliot acted as a reviewer for Medical Image Analysis, Neuroradiology and Clinical Epidemiology.
- N. Burgos acted as a reviewer for IEEE Transactions on Medical Imaging; Medical Image Analysis; Medical Physics; IEEE Transactions on Computational Imaging; Scientific Reports; Artificial Intelligence in Medicine; Physics in Medicine and Biology; NeuroImage: Clinical; EJNMMI Research; International Journal of Radiation Oncology, Biology, Physics.
- S. Epelbaum acted as a reviewer for Alzheimer's & Dementia, the Journal of Alzheimer's disease, Annals of Neurology and Annals of Clinical and Translational Neurology.
- S. Durrleman acted as a reviewer for Journal of Mathematical Imaging and Vision
- F. De Vico Fallani acted as a reviewer for Brain, PloS Biology, Network Neuroscience, J Neural Engineering, Neuroimage.

10.1.4. Invited Talks

- O. Colliot gave an invited seminar at the University of Southern California (Los Angeles, USA).
- O. Colliot gave an invited seminar at the meeting of the Scientific Council of the Institute of Biology of CNRS.
- O. Colliot gave an invited seminar at CentraleSupélec (Gif-sur-Yvette, France)
- N. Burgos gave an invited seminar at the Université de Tours (Tours, France)
- N. Burgos gave an invited presentation at the MaDICS Symposium (Rennes, France)
- F. De Vico Fallani was invited for a plenary talk at the Institut de neurosciences des systemes INS (Marseille, France)
- F. De Vico Fallani was invited for a plenary talk at the Stem-cell and brain research institute SBRI (Lyon, France)
- F. De Vico Fallani gave an invited seminar at Laboratoire Bordelais de la Recherche en informatique (LABRI), Bordeaux, France
- F. De Vico Fallani gave an invited seminar at the Ecole Polytechnique, Paris, France
- F. De Vico Fallani gave an invited seminar at the Ecole Normale Supérieure, Paris, France
- S. Durrleman gave an invited lecture at the Institute for Pure and Applied Mathematics (IPAM), Los Angeles, USA
- S. Durrleman gave an invited lecture at the Pasadena Workshop, Sorbonne Université, Paris
- S. Durrleman gave an invited lecture at the Disease Progression Modeling workshop in Bonn, Germany
- S. Durrleman gave an invited seminar at CMIC, University College London, UK
- S. Durrleman gave an invited seminar at Bordeaux University, France
- S. Durrleman gave an invited seminar at Ecole Polytechnique, Paris, France

10.1.5. Scientific Expertise

- O. Colliot is a member of the "Commission des emplois scientifiques" of the Inria Paris Center, in charge of evaluating applications for PhD fellowships, postdoc fellowships and secondments.
- O. Colliot acts as an expert for GENCI (the national facility for high-performance computing).
- O. Colliot was a member of the recruitment committee ("jury d'admission") for the national competition for recruitment of permanent researchers at CNRS.
- S. Durrleman is a member of the Commission de Développement Technologique (CDT) of Inria Paris Center.
- S. Durrleman is director of the ICM Center for Neuroinformatics, and scientific manager of the ICM platform for data management and analytics.
- S. Durrleman serves as secretary of the MICCAI Special Interest Group SHAPE.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: Olivier Colliot coordinates the course "Methods for medical imaging" of the Master 2 in Computer Science of Sorbonne University and teaches 4.5 hours (eqTD).
- Master: F. De Vico Fallani, 3 hours (eqTD), "Methods for medical imaging" of the Master 2 in Computer Science of Sorbonne University.
- Master: Olivier Colliot coordinates the course "Artificial Intelligence" of the Master 2 Bioentrepreneur of Paris-Descartes University and teaches 30 hours (eqTD).
- Master: S. Epelbaum, Master in Neuroscience, 4 hours (eqTD), Sorbonne University
- Master: S. Durrleman, Master Mathématiques, Vision, Apprentissage (MVA), ENS Paris-Saclay (21 hrs cours magistral)
- Engineering school: Olivier Colliot, 3 hours (eqTD), Mines ParisTech
- Medical school: Didier Dormont is the Director of the University Diploma (DIU) "Diagnostic and Therapeutic Neuroradiology", Sorbonne University
- Medical school: Didier Dormont, Courses for Medical Students, Sorbonne University
- Medical school: Didier Dormont organizes and participates in the practical teaching of Neuroradiology for Medical Students in the Department of Diagnostic Neuroradiology of Pitié Salpêtrière University Hospital
- Medical school: Didier Dormont organizes and participates in the practical teaching of Neuroradiology for Radiology Specializing Residents in the Department of Diagnostic Neuroradiology of Pitié Salpêtrière University Hospital
- Medical school: S. Epelbaum gives lectures in Neurology on the topic of degenerative diseases for medical students of Sorbonne University (10 hours/year) and is regional supervisor of the national Inter University Diploma on Alzheimer's disease and Related disorders for Paris since 2015.

10.2.2. Supervision

PhD in progress : Juliana Gonzalez-Astudillo, "Network features for brain-computer interfaces", UPMC, started in 2019, advisor: Fabrizio De Vico Fallani

PhD in progress : Giulia Bassignana, "Identification of driver nodes in biological networks", Inserm, started in 2017, advisors: Fabrizio De Vico Fallani, Olivier Colliot, Violetta Zujovic

PhD in progress : Tiziana Cattai, "Leveraging brain connectivity networks to detect mental states in brain-computer interfaces", Inria, started in 2017, advisor: Fabrizio De Vico Fallani

PhD in progress : Virgilio Kmetzsch, "CMultimodal analysis of neuroimaging and transcriptomic data in genetic fronto-temporal dementia", Sorbonne University, Started in 2019, advisors: Olivier Colliot, Emmanuelle Becker and Olivier Dameron

PhD in progress: Wen Wei, “Learning brain alterations in multiple sclerosis from multimodal neuroimaging data”, Université de Nice Sophia-Antipolis, Started in 2016, advisors: N. Ayache, O. Colliot and S. Durrleman

PhD in progress: Alexandre Bône, “Learning methods for the spatiotemporal analysis of longitudinal image data: application to the diagnosis, prognosis and monitoring of Alzheimer’s disease”, started in 2016, advisors: O. Colliot and S. Durrleman

PhD in progress: Igor Koval, “Construction of disease progression models from multimodal longitudinal data”, started in 2016, advisors: S. Allasonnière and S. Durrleman

PhD in progress: Raphael Couronné, “Spatiotemporal analysis of the progression of the Parkinson’s Disease informed by multimodal longitudinal data”, started in 2018, advisor: S. Durrleman

PhD in progress: Thomas Lartigue, “Mixture Models in Gaussian Graphical Models”, started in 2017, advisors: S. Allasonnière and S. Durrleman

PhD in progress: Vianney Debavelaere, “Analysis of distribution of spatiotemporal trajectories in heterogeneous populations”, started in 2018, advisors: S. Allasonnière and S. Durrleman

PhD in progress: Johann Faouzi, “Machine learning approaches to predict impulse control disorders in Parkinson’s disease”, started in 2018, advisors: O. Colliot and J.-C. Corvol

PhD in progress: Simona Bottani, “Machine learning for differential diagnosis of neurodegenerative diseases from multimodal data”, started in 2018, advisors: O. Colliot and N. Burgos

PhD in progress: Elina Thibeau-Sutre, “Unsupervised learning from neuroimaging data to identify disease subtypes in Alzheimer’s disease and related disorders”, started in 2018, advisors: D. Dormont and N. Burgos

PhD in progress: Federica Cacciamani, “Awareness for cognitive decline in the earliest stages of Alzheimer’s disease”, started in 2018, advisor: S. Epelbaum

PhD in progress: Paul Vernhet, “Learning dynamical systems for disease progression modeling”, started in 2019, advisor: S. Durrleman

PhD in progress: Clément Mantoux, “Statistical analysis of graphs”, started in 2019, advisors: S. Durrleman and S. Allasonnière

10.2.3. *Juries*

- Olivier Colliot participated, as referee, to the PhD committee of Killian Hett (University of Bordeaux).
- Olivier Colliot participated, as referee, to the PhD committee of Florian Tilquin (University of Strasbourg).
- Olivier Colliot participated, as thesis director, to the PhD committee of Jorge Samper-Gonzalez (Sorbonne University).
- Olivier Colliot participated, as thesis director, to the PhD committee of Junhao Wen (Sorbonne University).
- Olivier Colliot participated, as thesis director, to the PhD committee of Pascal Lu (Sorbonne University).
- F. De Vico Fallani participated, as referee, to the PhD committee of Melodie Foullien (University of Lyon).
- F. De Vico Fallani participated, as examiner, to the PhD committee of Sebastien Campeon (Sorbonne University).
- S. Epelbaum participated, as thesis director, to the MD committee of Sinead Gaubert (AP-HP).
- S. Durrleman participated, as referee, to the PhD committee of Razwan Marinescu (University College London)

- S. Durrleman participated, as referee, to the PhD committee of Raphaël Sivera (Université Côte d'Azur)
- S. Durrleman participated, as thesis advisor, to the PhD committee of Maxime Louis (Sorbonne Université)
- S. Durrleman participated, as thesis advisor, to the PhD committee of Manon Ansart (Sorbonne Université)

10.3. Popularization

10.3.1. Articles and contents

- Olivier Colliot gave an interview for the popular science magazine "La Recherche".
- Stéphane Epelbaum participated to multiple events dedicated to general audience outreach including: articles in journals (L'Express, AFP, Pourquoi docteur) Radio shows and podcasts (France inter) and TV shows (BFMTV).
- S. Durrleman participated to several events dedicated to general audience outreach including 2 articles in Le Figaro Santé, 2 keynote lectures at AI for Health conference, and Sommet des start-up Challenges, and an article in Médecine, Cerveau et Cognition.

10.3.2. Interventions

- N. Burgos gave a presentation for the Rendez-vous des Jeunes Mathématiciennes (Inria Paris).

CAGE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

- Ugo Boscain, Jean-Michel Coron, and Mario Sigalotti organized the workshop “Quantum day: analysis and control”, December 16, Paris
- Ugo Boscain and Emmanuel Trélat organized the minisymposium “Degenerate diffusion processes and their control” at Equadiff 2019, July 8-12, Leiden, The Netherlands
- Ugo Boscain organized (with Aleksey Kostenko and Konstantin Pankrashkin) the workshop “Self-adjoint Extensions in New Settings”, October 6–12, Mathematisches Forschungsinstitut Oberwolfach, Germany
- Barbara Gris organized the minisymposium “Analyse des formes anatomiques” at Smal, May 13–17, Guidel Plages (Morbihan)
- Barbara Gris organized the workshop “Shape analysis in biology”, November 21–22, Paris
- Emmanuel Trélat organized (with Roland Herzog) the workshop “New Trends in PDE-constrained Optimization”, October 14–18, RICAM, Linz, Austria

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

Emmanuel Trélat was member of the Conference Program Committee of the SIAM Conference on Control and its Applications (CT 2019), Chengdu, China.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Ugo Boscain is Associate editor of SIAM Journal of Control and Optimization
- Ugo Boscain is Managing editor of Journal of Dynamical and Control Systems
- Jean-Michel Coron is Editor-in-chief of Comptes Rendus Mathématique
- Jean-Michel Coron is Member of the editorial board of Journal of Evolution Equations
- Jean-Michel Coron is Member of the editorial board of Asymptotic Analysis
- Jean-Michel Coron is Member of the editorial board of ESAIM : Control, Optimisation and Calculus of Variations
- Jean-Michel Coron is Member of the editorial board of Applied Mathematics Research Express
- Jean-Michel Coron is Member of the editorial board of Advances in Differential Equations
- Jean-Michel Coron is Member of the editorial board of Math. Control Signals Systems
- Jean-Michel Coron is Member of the editorial board of Annales de l’IHP, Analyse non linéaire
- Mario Sigalotti is Associate editor of ESAIM : Control, Optimisation and Calculus of Variations
- Mario Sigalotti is Associate editor of Journal on Dynamical and Control Systems
- Emmanuel Trélat is Editor-in-chief of ESAIM : Control, Optimisation and Calculus of Variations
- Emmanuel Trélat is Associate editor of SIAM Review
- Emmanuel Trélat is Associate editor of Syst. Cont. Letters

- Emmanuel Trélat is Associate editor of J. Dynam. Cont. Syst.
- Emmanuel Trélat is Associate editor of Bollettino dell'Unione Matematica Italiana
- Emmanuel Trélat is Associate editor of ESAIM Math. Modelling Num. Analysis
- Emmanuel Trélat is Editor of BCAM Springer Briefs
- Emmanuel Trélat is Associate editor of J. Optim. Theory Appl.
- Emmanuel Trélat is Associate editor of Math. Control Related fields

9.1.4. Invited Talks

- Ugo Boscain was invited speaker at the School and Workshop “Random Matrix Theory and Point Processes”, Trieste, Italy, September.
- Barbara Gris was invited speaker at “Young researchers Imaging Seminars”, IHP, Paris, February.
- Barbara Gris was invited speaker at GDR MAMOVI, Tours, February.
- Barbara Gris was invited speaker at “Information Geometry”, Toulouse, October.
- Emmanuel Trélat was plenary speaker at “Equadiff 2019”, Leiden, The Netherlands, July.
- Emmanuel Trélat was invited speaker at “Colloquium du Laboratoire de Mathématiques d’Avignon”, Mars.
- Emmanuel Trélat was invited speaker at “DEA 2019”, Krakow, Poland, September.
- Emmanuel Trélat was invited speaker at “Quantization in Symplectic Geometry”, Cologne, Germany, July.
- Emmanuel Trélat was invited speaker at “Mathematical Models and Methods in Earth and Space Science”, Rome, Italy, March.
- Emmanuel Trélat was invited speaker at “Sub-Riemannian Geometry and beyond”, Jyväskylä, Finland, February.

9.1.5. Leadership within the Scientific Community

Emmanuel Trélat was director of the Fondation Sciences Mathématiques de Paris (FSMP) until June.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Ugo Boscain thought “Controllability of Closed Quantum Systems” to PhD students at the first QUSCO School, Saarbrücken, Germany.
- Ugo Boscain thought “Automatic Control” (with Mazyar Mirrahimi) at Ecole Polytechnique
- Ugo Boscain thought “MODAL of applied mathematics. Contrôle de modèles dynamiques” at Ecole Polytechnique
- Ugo Boscain thought “Control theory and applications in Quantum Mechanics” to PhD students at SISSA, Trieste, Italy
- Mario Sigalotti thought “Geometric Control Theory” to PhD students at “29th Jyväskylä Summer School”, Jyväskylä, Finland
- Mario Sigalotti thought “Équations d’évolution, stabilité et contrôle” to M1 students at Sorbonne Université
- Emmanuel Trélat thought “Control in finite and infinite dimension” to M2 students at Sorbonne Université

9.2.2. Supervision

PhD: Nicolas Augier, “Contrôle adiabatique des systèmes quantiques”, September 2019, supervisors: Ugo Boscain, Mario Sigalotti.

PhD: Amaury Hayat, “Stabilisation de systèmes hyperboliques non-linéaires en dimension un d’espace”, May 2019, supervisors: Jean-Michel Coron and Sébastien Boyaval

PhD: Mathieu Kohli, “On the notion of geodesic curvature in sub-Riemannian geometry”, September 2019, supervisors: Davide Barilari, Ugo Boscain.

PhD: Jakub Orłowski, “Adaptive control of time-delay systems to counteract pathological brain oscillations”, December 2019, supervisors: Antoine Chaillet, and Mario Sigalotti.

PhD: Shengquan Xiang, “Stabilisation rapide d’équations de Burgers et de Korteweg-de Vrie”, June 2019, supervisor: Jean-Michel Coron.

PhD: Christophe Zhang, “Contrôle et stabilisation internes de systèmes hyperboliques 1-D”, October 2019, supervisor: Jean-Michel Coron.

PhD in progress: Gontran Lance, started in September 2018, supervisors: Emmanuel Trélat and Enrique Zuazua.

PhD in progress: Cyril Letrouit, “Équation des ondes sous-riemanniennes”, started in September 2019, supervisor Emmanuel Trélat.

PhD in progress: Emilio Molina, “Application of optimal control techniques to natural resources management”, started in September 2018, supervisors: Pierre Martinon, Héctor Ramírez, and Mario Sigalotti.

PhD in progress: Eugenio Pozzoli, “Adiabatic Control of Open Quantum Systems”, started in September 2018, supervisors: Ugo Boscain and Mario Sigalotti.

PhD in progress: Rémi Robin, “Orbit spaces of Lie groups and applications to quantum control”, started in September 2019, supervisors: Ugo Boscain and Mario Sigalotti.

9.2.3. Juries

- Ugo Boscain and Mario Sigalotti were supervisors and members of the jury of the PhD thesis of Nicolas Augier, Université Paris Saclay
- Ugo Boscain was co-supervisor and member of the jury of the PhD thesis of Mathieu Kohli, Université Paris Saclay
- Jean-Michel Coron was supervisor and member of the jury of the PhD thesis of Christophe Zhang, Sorbonne Université.
- Jean-Michel Coron was supervisor and member of the jury of the PhD thesis of Shengquan Xiang, Sorbonne Université.
- Mario Sigalotti was opponent of the PhD thesis of Eero Hakavuori, Jyväskylä University, Finland
- Mario Sigalotti was president and member of the jury of the PhD thesis of Gerardo Cardona, École des Mines, Paris.
- Emmanuel Trélat was referee and member of the jury of the HDR of Patrick Martinez, Université de Toulouse.
- Emmanuel Trélat was member of the jury of the HDR of Max Cerf, Sorbonne Université.
- Emmanuel Trélat was referee and member of the jury of the PhD thesis of Mathieu Granzotto, Université de Lorraine.
- Emmanuel Trélat was member of the jury of the PhD thesis of Christophe Zhang, Sorbonne Université.
- Emmanuel Trélat was president and member of the jury of the PhD thesis of Armand Koenig, Université de Nice.
- Emmanuel Trélat was member of the jury of the PhD thesis of Shengquan Xiang, Sorbonne Université.
- Emmanuel Trélat was member of the jury of the PhD thesis of Nicolas Hegoburu, Université de Bordeaux.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

Emmanuel Trélat is member of the Comité d’Honneur du Comité International des Jeux Mathématiques

9.3.2. Articles and contents

- The work [7] by Pierre Martinon has been popularized in the article “Athlétisme, affaire Dreyfus, itinéraire des éboueurs... Comment les maths irriguent notre monde” by Soline Roy, appeared in *Le Figaro*, 1/1/2019.
- Emmanuel Trélat has been interviewed, as director of the Fondation Sciences Mathématiques de Paris, in *Le Figaro*, 2/1/2019.

9.3.3. Interventions

- Emmanuel Trélat gave a cycle of lectures at “Sciences et Société”, Nancy
- Emmanuel Trélat gave a lecture at Bibliothèque Nationale de France (BNF) (<https://vimeo.com/313123529>)
- Emmanuel Trélat gave a general public lecture at “Mois de l’optimisation”, Limoges
- Emmanuel Trélat gave a general public lecture in Padua, Italy

CAMBIUM Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Chair of Conference Program Committees

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

9.1.1.2. Member of the Conference Program Committees

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

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

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

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

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

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

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

9.1.3. Scientific Expertise

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

9.1.4. Research Administration

Damien Doligez chairs the Caml Consortium.

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

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

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

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

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

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

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

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

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

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

9.2.2. Supervision

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

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

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

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

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

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

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

9.2.3. Juries

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

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

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

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

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

9.3. Popularization

9.3.1. Interventions

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

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

CASCADE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. Events and Activities

- Quarterly Paris Crypto Days (<https://pariscryptoday.github.io>) supported by CryptoCloud and aSCEND
- Seminars are organized: <https://crypto.di.ens.fr/web2py/index/seminars>
- OPACity – Obfuscation: Proofs, Attacks & Candidates, (<http://crypto-events.di.ens.fr/opacity/>) Eurocrypt affiliated event. May 19, 2019, Darmstadt, supported by aSCEND
- BibTeX database of papers related to Cryptography, open and widely used by the community (<https://cryptobib.di.ens.fr>)

8.1.1.2. Steering Committees of International Conferences

- Steering committee of CANS: David Pointcheval
- Steering committee of PKC: David Pointcheval
- Steering committee of LATINCRYPT: Michel Abdalla (chair)
- Steering committee of Information-Theoretic Cryptography Conference: Hoeteck Wee

8.1.1.3. Board of International Organisations

- Board of the *International Association for Cryptologic Research* (IACR): Michel Abdalla (2013 – 2021)
- President-Elect of the *International Association for Cryptologic Research* (IACR): Michel Abdalla (2019 –)

8.1.2. Scientific Events Selection

8.1.2.1. Program Committee Member

- ACNS '19 (Bogotá, Colombia): Michel Abdalla
- ASIACRYPT '19 (Kobe, Japan): Brice Minaud, Hoeteck Wee
- CT-RSA '19 (San Francisco, California, USA): David Pointcheval
- EUROCRYPT '19 (Darmstadt, Germany): Michel Abdalla
- LATINCRYPT '19 (Santiago, Chile): Michel Abdalla
- PKC '20 (Edinburgh, Scotland): Georg Fuchsbauer

8.1.2.2. Editorial Boards of Journals

Editor-in-Chief

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

Associate Editor

- of *ETRI Journal*: Michel Abdalla
- of *Journal of Mathematical Cryptology*: Phong Nguyen
- of *Applicable Algebra in Engineering, Communication and Computing*: David Pointcheval

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

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

8.2.2. Defenses

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

8.2.3. Supervision

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

8.2.4. Committees

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

- PhD Mary Maller. *Practical zero-knowledge arguments from structured reference strings* – University College London – United Kingdom – March 26th, 2019: Georg Fuchsbauer (Reviewer)
- PhD Anca Nitulescu. *A Tale of SNARKs: Quantum Resilience, Knowledge Extractability and Data Privacy* – Ecole Normale Supérieure – France – April 1st, 2019: Michel Abdalla and David Pointcheval (Co-supervisors)
- PhD José Miguel López Becerra. *Provable Security Analysis for the PAKE Problem* – University of Luxembourg – Luxembourg – May 14th, 2019: Michel Abdalla
- PhD Razvan Rosie. *On the Achievability of White-Box Cryptography* – Ecole Normale Supérieure – France – May 28th, 2019: Michel Abdalla (Supervisor)
- HdR Olivier Blazy. *Hash Proofs Systems and Applications to Implicit Cryptography* – Université de Limoges – France – June 12th, 2019: David Pointcheval
- PhD Aurélien Dupin. *Secure Multi-Party Computation and Privacy* – Université Bretagne Loire – France – June 13rd, 2019: David Pointcheval (Co-supervisor)
- PhD Louiza Khati. *Full Disk Encryption and Beyond* – Ecole Normale Supérieure – France – July 15th, 2019: David Pointcheval
- PhD Julian Loss. *New Techniques for the Modular Analysis of Digital Signature Schemes* – Ruhr Universität Bochum – Germany – July 20th, 2019: David Pointcheval (Reviewer)
- PhD Aisling Connolly. *New Notions of Security, Broken Assumptions, and Increased Efficiency* – Ecole Normale Supérieure – France – September 13th, 2019: Michel Abdalla
- PhD Chen Qian. *Lossy Trapdoor Primitives, Zero-Knowledge Proofs and Applications* – Université de Rennes 1 – France – October 4th, 2019: Michel Abdalla
- PhD Alice Pellet-Mary. *On ideal lattices and the GGH13 multilinear map* – Ecole Normale Supérieure de Lyon – France – October 16th, 2019: David Pointcheval (Chair and Reviewer)
- HdR Guilhem Castagnos. *Cryptography based on Quadratic Fields: Cryptanalyses, Primitives and Protocols* – Université de Bordeaux – France – November 8th, 2019: David Pointcheval (Reviewer)
- PhD Joseph Lallemand. *Vote électronique : définitions et techniques d'analyse* – Université de Lorraine – France – November 8th, 2019: David Pointcheval (Reviewer)
- PhD Loïc Ferreira. *Secure Tunnels for Constrained Environments* – Université Bretagne Loire – France – November 18th, 2019: David Pointcheval
- PhD Pauline Bert. *Lattice-based signatures: from construction to implementation* – Université Bretagne Loire – France – November 29th, 2019: David Pointcheval
- PhD Jérémy Chotard. *Delegation in functional encryption* – Université de Limoges - France – Décembre 2nd, 2019: David Pointcheval (Co-supervisor) and Michel Abdalla (Chair)

COML Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

- E. Dupoux & E. Dunbar: Co-organizers of the INTERSPEECH 2019 Zero Ressource Challenge Session.

9.1.1.2. Member of the Organizing Committees

- Executive committee of SIGMORPHON (Association for Computational Linguistics Special Interest Group, <http://www.sigmorphon.org/>).
- Executive committee of DARCLE <http://www.darclle.org>.

9.1.2. Scientific Events Selection

9.1.2.1. Reviewer

Invited editor for international conferences: Interspeech, NIPS, ACL, etc. (around 5-10 papers per conferences, 2 conferences per year)

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Member of the editorial board of: *Mathématiques et Sciences Humaines*, *L'Année Psychologique*, *Frontiers in Psychology*.

9.1.3.2. Reviewer - Reviewing Activities

Invited Reviewer for *Frontiers in Psychology*, *Cognitive Science*, *Cognition*, *Transactions in Acoustics Signal Processing and Language*, *Speech Communication*, etc. (around 4 papers per year)

9.1.4. Invited Talks

- Dec/4/2019, E. Dupoux, Invited Speaker, Symposium NeuroDevRob: Developmental AI, Cergy Pontoise
- Jul/15/2019, E. Dupoux, Invited Seminar, Microsoft Research: Inductive Biases and Language Emergence in Communicative Agents, Seattle
- Jun/26/2019, E. Dupoux, Invited Speaker, DARPA MCS Kickoff Meeting: Measuring Intuitive Physics Understanding in Artificial Systems, Washington DC
- May/26/2019, E. Dupoux, Invited Speaker, Facebook CogSci-AI Workshop: Learning speech like infants do, New York
- Mar/14/2019, E. Dupoux, GDR TAL, Artificial models of language acquisition, Paris
- Jan/13/2019, E. Dupoux, Invited Seminar, UTC Compiègne, Developmental AI

9.1.5. Scientific Expertise

E. Dupoux is invited expert for ERC, ANR, and other granting agencies, or tenure committees (around 2 per year).

9.1.6. Research Administration

E. Dupoux is on the Executive committee of the Foundation Cognition, the research programme IRIS-PSL "Sciences des Données et Données des Sciences", the industrial chair Almerys (2016-) and the collective organization DARCLE (<http://www.darcle.org>).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

E. Dupoux is co-director of the Cognitive Engineering track in the Cognitive Science Master (ENS, EHESS, Paris V).

- Master : E. Dupoux (with B. Sagot, ALMANACH, N. Zeghidour & R. Riad, COML), "Algorithms for speech and language processing", 30h, M2, (MVA), ENS Cachan, France
- Master : E. Dupoux, "Cognitive Engineering", 80h, M2, ITI-PSL, Paris France
- Doctorat : E. Dupoux, "Computational models of cognitive development", 32 h, Séminaire EHESS, Paris France
- Master: E. Dunbar, "Phonology" , 36 h, Master Sciences du Langage, Paris Diderot
- Master: E. Dunbar, "Statistics", 28h, Master Sciences du Langage, Paris Diderot
- Licence 3: E. Dunbar, "Phonology", 36h, Licence Sciences du Langage, Paris Diderot
- Licence 3: E. Dunbar, "Experimental methods", 36h, Licence Sciences du Langage, Paris Diderot

9.2.2. Supervision

- defended PhD: Neil Zeghidour, Learning speech features from raw signals, Feb 2015-13 Mar 2019, co-advised E. Dupoux, N. Usunier (Facebook-CIFRE)
- PhD in progress : Rahma Chaabouni, Language learning in artificial agents, Sept 2017, co-advised E. Dupoux, M. Baroni (Facebook-CIFRE)
- PhD in progress : Ronan Riochet, Learning models of intuitive physics, Sept 2017, co-advised E. Dupoux, I. Laptev, J. Sivic
- PhD in progress : Rachid Riad, "Speech technology for biomarkers in neurodegenerative diseases" , Sept 2018, co-advised E. Dupoux, A.-C. Bachoud-Levi
- PhD in progress : Robin Algayres "Audio word embeddings and word segmentation" , from Oct 2019, co-advised E. Dupoux, B. Sagot
- PhD in progress: Juliette Millet, "Modeling L2 Speech perception", from Sept 2018, advised E. Dunbar Bachoud-Lévi

9.2.3. Juries

E. Dupoux participated in the HDR jury of Jacques Cartier Jul 3, 2019.

9.3. Popularization

E. Dupoux presented the startup project BabyCloud at the CNRS innovatives SHS Salon, May 14-16, Lille.

COMMEDIA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

- Céline Grandmont
 - Co-organizer of Inria-LJLL meeting in scientific computing
- Damiano Lombardi
 - Co-organisation (with Sanjay Pant, Swansea University) of two mini-symposia: Machine learning methods in biomedical engineering and Uncertainty Quantification and Bayesian inference in biomedical applications at CMBE 2019, June 2019, Sendai, Japan
 - Co-organizer of Inria-LJLL meeting in scientific computing
- Olga Mula
 - Co-organizer of Summer School on Sparsity for Physics, Signals and Learning, at Inria Paris, June 2019
 - Co-organiser of the GdT Stat-Num at Paris Dauphine

10.1.1.1. Member of the Organizing Committees

- Céline Grandmont
 - Member of the local organizing committee of WCCM 2020

10.1.2. Scientific Events: Selection

- Muriel Boulakia
 - Member of the scientific committee of LIA COPDESC and Lions-Magenes Days, LJLL, November 2019, Paris
- Miguel Ángel Fernández Varela
 - Member of the scientific committee of XDMS 2019, July 2019, Lugano

10.1.2.1. Member of the Editorial Boards

- Céline Grandmont
 - Member of the editorial board of Mathematical Modelling of Natural Phenomena
 - Member of the editorial board of Journal of Mathematical Fluid Mechanics (since November 2019)
- Olga Mula
 - Member of the editorial board of Calcolo (since October 2019)

10.1.2.2. Reviewer - Reviewing Activities

- Muriel Boulakia
 - Expert for « Appel à projets générique », ANR 2019

10.1.3. Research Administration

- Miguel Ángel Fernández Varela
 - Head of Science, Inria Paris (from September 2019)
 - Deputy Head of Science, Inria Paris (until August 2019)
 - Member of the Inria Evaluation Committee

- Céline Grandmont
 - Member of the Inria Evaluation Committee
 - Member of the Inria Parity Committee
 - Member of the scientific board of the EDMH, Paris Saclay

10.1.4. Conferences

- Muriel Boulakia
 - Seminar, Modeling and scientific computation, November 2019, LAGA, Univ. Paris 13
 - Invited speaker, Control and stabilization issues for PDE, September 2019, Toulouse
 - Contributed talk in minisymposium, Applied Inverse Problems Conference, July 2019, Grenoble
 - Seminar, Numerical Analysis and PDE, Université Lille, March 2019, Lille
 - Invited speaker, Workshop on fluid-structure interaction, March 2019, Politecnico di Milano, Italy
- Miguel Ángel Fernández Varela
 - Seminar, Laboratoire Mathématiques Jean Leray, Univ Nantes, Nantes
 - Contributed talk in minisymposium, ICIAM, July 2019, Valencia, Spain
 - Invited speaker, iHEART conference on Modelling the Cardiac Function, July 2019, Varese, Italy
- Felipe Galarce Marin
 - Seminar at Inria Chile, July 2019, Santiago, Chile
 - Semina at Universidad Técnica Federico Santa Maria, July 2019, Valparaiso, Chile
 - Seminar at Pontificia Universidad Católica de Valparaíso, July 2019, Valparaíso, Chile
 - Contributed talk in minisymposium, CSMA, May 2019, Giens
 - Contributed talk in minisymposium, Enumath, September/October 2019, Egmond aan Zee, The Netherlands
- Fannie Gerosa
 - Contributed talk in minisymposium, 9th biennial congress of SMAI, May 2019, Guidel Plages, France
 - Contributed talk in minisymposium, 15th US National Congress on Computational Mechanics, July/August 2019, Austin, Texas
- Céline Grandmont
 - Plenary speaker, International Meeting on Applied Mathematics & Evolution, La Rochelle, April 2019
 - Keynote speaker, PDE 2019: Partial Differential Equations in Fluids and Solids, Berlin, Sep. 2019
 - Invited Speaker, International Conference “Multiscale Modeling in Fluid Mechanics and Fluid-Structure Interaction” , Oct. 2019, Vilnius
 - Seminar, ULB, Bruxelles, Nov. 2019
 - Seminar, CMAP, Ecole Polytechnique, Dec. 2019
- Damiano Lombardi
 - Contributed talk in minisymposium, ICIAM, July 2019, Valencia, Spain
 - Contributed talk at the Lions-Magenes days, November 2019, Paris.
 - Contributed talk at Mortech, November 2019, Paris.

- Olga Mula
 - Contributed talk at Enumath, September/October 2019, Egmond aan Zee, The Netherlands
 - Contributed talk at INdAM workshop on kinetic equations, November 2019, Rome, Italy
 - Contributed talk at Mortech, November 2019, Paris.
- Fabien Raphel
 - Contributed poster at The Safety Pharmacology Society (SPS) annual meeting, September 2019, Barcelona, Spain
 - Contributed talk at The Safety Pharmacology Society (SPS) webinar, November 2019, Paris
 - Invited talk at Math jobs forum University of Nantes, January 2019, Nantes

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence:

- Muriel Boulakia
 - Projects on differential equations, 34h, L3, Polytech Sorbonne, Sorbonne Université
 - Nonlinear systems and optimization, 35h, L3, Polytech Sorbonne, Sorbonne Université
 - Numerical approximation of functions, 36h, L3, Sorbonne Université
- Fannie Gerosa
 - Function series, integrals and application to differential equation, 38h, L3, Sorbonne Université
- Damiano Lombardi
 - Cours/TD analysis and scientific computing, 32 h, ENPC, L3.
 - Model reduction in large dimensions, 9h, ENPC, L3.
 - TD, Function approximation, Sorbonne University , 18h, L3

Master:

- Muriel Boulakia
 - Preparatory course for teaching admission examination “Agrégation”, 40h, M2, Sorbonne Université
- Miguel Ángel Fernández Varela
 - Modeling and numerical methods for hemodynamics, 30h, M2, Sorbonne Université
- Damiano Lombardi
 - Mini-cours Modeling of cardiac electrophysiology, 3h, M2, Ecole des Mines Paristech

Others:

- Céline Grandmont
 - Invited Lecturer, Hausdorff School on “Modeling and Analysis of Evolutionary Problems in Materials Science” , 6h, Bonn, Sept. 2019

- Invited Lecturer, Institut d’Etudes Scientifiques de Cargèse, Summer school : *Why modelling the pulmonary ventilation? Music, exercise and medicine*, 1h30, November 2019

10.2.2. Supervision

PhD: Ludovic Boilevin-Kayl, Modeling of cardiac implantable devices, Sorbonne Université, defended on July 10, 2019. Supervisors: J.-F. Gerbeau & M.A. Fernández Varela

PhD: Alexandre This, Fusion data/simulation for the assessment of mitral regurgitation, Sorbonne Université, defended on May 28, 2019. Supervisors: O. Bonnefous, M.A. Fernández Varela, J.-F. Gerbeau & H. Morales

PhD in progress: Mocia Agbalessi, Modeling and patient specific fluid-structure interaction simulations of aortic pathological configurations. Since April, 2019, Supervisors: M.A. Fernández Varela & D. Lombardi

PhD in progress: Felipe Galarce, Enhancing hemodynamics measurements with mathematical modeling, since December 2017. Supervisors: J.-F. Gerbeau, D. Lombardi & O. Mula

PhD in progress: Fannie Gerosa, Immersed boundary methods for fluid-structure interaction with topological changes, since January 2018. Supervisor: M.A. Fernández Varela

PhD in progress: Fabien Raphel, Mathematical modeling and learning of biomedical signals for safety pharmacology. Since April 2019. Supervisors: J.-F. Gerbeau & D. Lombardi

10.2.3. Juries

- Miguel Ángel Fernández Varela
 - Hiring committees: Inria Paris (CRCN, Vice-président), Université de Franche-Comté (MdC)
 - PHD committee: P. Quemar, Université Paris-Nord (reviewer), D. Nolte, Groningen University, The Netherlands (reviewer), R.J. Rebolledo Cormack, Universidad de Concepción, Chile (reviewer)
- Céline Grandmont
 - Member of the “agrégation” jury in mathematics
 - Hiring committees: Inria CRCN, Inria DR2
 - PHD committee: N. Lauzeral, Ecole centrale de Nantes (reviewer), F. Vergnet, Paris Sud Univ (member), A. Dekkers, Centrale Supélec (reviewer)
 - HDR committee: A. Decoene, Paris-Sud Univ (reviewer)

10.3. Popularization

10.3.1. Interventions

- Céline Grandmont
 - Meeting with junior high school students, Collège Iqbal Masih, Saint-Denis. Interview: <https://www.youtube.com/watch?v=eJVVB7z8tU&t=12s>

DELYS Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. Chair of Conference Steering Committees

- Marc Shapiro is a member of the steering committee of the yearly Workshop on Principles and Practice of Consistency (PaPoC), co-located with EuroSys.

8.1.2. Scientific Events: Selection

8.1.2.1. Member of the Conference Program Committees

Marc Shapiro, member of PC of the European Conference on Computer Systems (EuroSys) 2020, in Heraklion (Greece).

Marc Shapiro, member of PC of the European Conference on Computer Systems (EuroSys) 2019, in Dresden (Germany).

Marc Shapiro, member of Programme Committed of the ACM Symposium on Principles of Distributed Computing (PODC) 2019, in Salerno, Italy.

Marc Shapiro, member of the PC of the Workshop on Planetary-Scale Distributed Systems (W-PSDS) 2019, in Lyon.

Marc Shapiro, member of the Technical Program Committee of the Workshop on Advanced tools, programming languages, and PLatforms for Implementing and Evaluating algorithms for Distributed systems (ApPLIED) 2019, in Budapest, Hungary.

Pierre Sens, 29th International Symposium on Software Reliability Engineering (ISSRE 2019), 19th IEEE International Symposium on Network Computing and Applications (NCA 2019), 38th IEEE International Symposium on Reliable Distributed Systems (SRDS 2019), Gestion de Données – Principes, Technologies et Applications (BDA 2019).

Swan Dubois, 21st International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2019), 21èmes Rencontres Francophones pour les Aspects Algorithmiques des Télécommunications (AlgoTel'18).

Jonathan Lejeune, 22nd Innovation in Clouds, Internet and Networks (ICIN 2019)

8.1.2.2. Reviewer

Swan Dubois, 26th International Colloquium on Structural Information and Communication Complexity (SIROCCO'19).

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

Pierre Sens, International Journal of High Performance Computing and Networking (IJHPCN)

8.1.3.2. Reviewer - Reviewing Activities

Swan Dubois, Distributed Computing, Theoretical Computer Science.

Luciana Arantes, Journal of Parallel and Distributed Computing.

Pierre Sens, Journal of Parallel and Distributed Computing

8.1.4. Invited Talks

Marc Shapiro gave the keynote presentation titled “Living on the edge, safely; or: Life without consensus” at the 7th International Conference on Networked Systems, in Marrakech, Morocco, June 2019.

Marc Shapiro gave an invited talk on “The programming continuum, from core to edge,” at the Workshop on Verification of Distributed Systems (VDS), June 2019, Marrakech, Morocco.

Marc Shapiro gave two invited talks at the Dagstuhl Seminar on “Programming Languages for Distributed Systems and Distributed Data Management,” October 2019.

Marc Shapiro was invited to speak about “Living Without Consensus,” at the seminar “Taking Stock of Distributed Computing,” at Collège de France, April 2019. The seminar was organised in conjunction with the *Chaire informatique et sciences numériques* of Rachid Guerraoui.

Pierre Sens, *Probabilistic Byzantine Tolerance Scheduling in Hybrid Cloud Environments*. Research Seminar, University of Fluminense, Brazil, October 2019

Pierre Sens, *Fault tolerance in large and dynamic distributed systems*. Research Seminar, University of Fluminense, Brazil, October 2019

Luciana Arabtes, *A Communication-Efficient Causal Broadcast Protocol*. Research Seminar, University of Fluminense, PUC-Rio, Brazil, October 2019

8.1.5. Leadership within the Scientific Community

- Marc Shapiro is Vice-Chair for Research of Société informatique de France, the French learned society in Informatics.

8.1.6. Research Administration

Pierre Sens, since 2016: Member of Section 6 of the national committee for scientific research CoNRS

Franck Petit, Pierre Sens, since 2012: Member of the Executive Committee of Labex SMART, Co-Chairs of Track 4, Autonomic Distributed Environments for Mobility.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Julien Sopena is Member of “Directoire des formations et de l’insertion professionnelle” of Sorbonne Université, France

Master: Julien Sopena is responsible of Computer Science Master’s degree in Distributed systems and applications (in French, SAR), Sorbonne Universités, France

Master: Luciana Arantes, Swan Dubois, Jonathan Lejeune, Franck Petit, Pierre Sens, Julien Sopena, Advanced distributed algorithms, M2, Sorbonne Université, France

Master: Jonathan Lejeune, Designing Large-Scale Distributed Applications, M2, Sorbonne Université, France

Master: Maxime Lorrillere, Julien Sopena, Linux Kernel Programming, M1, Sorbonne Université, France

Master: Luciana Arantes, Swan Dubois, Jonathan Lejeune, Pierre Sens, Julien Sopena, Operating systems kernel, M1, Sorbonne Université, France

Master: Luciana Arantes, Swan Dubois, Franck Petit, Distributed Algorithms, M1, Sorbonne Université, France

Master: Franck Petit, Autonomic Networks, M2, Sorbonne Université, France

Master: Franck Petit, Distributed Algorithms for Networks, M1, Sorbonne Université, France

Master: Jonathan Lejeune, Julien Sopena, Client-server distributed systems, M1, Sorbonne Université, France.

Master: Julien Sopena, Marc Shapiro, Ilyas Toumlilt, Francis Laniel. Kernels and virtual machines (*Noyaux et machines virtuelles*, NMV), M2, Sorbonne Université, France.

Licence: Pierre Sens, Luciana Arantes, Julien Sopena, Principles of operating systems, L3, Sorbonne Université, France

Licence: Swan Dubois, Initiation to operating systems, L3, Sorbonne Université, France

Licence: Swan Dubois, Multi-threaded Programming, L3, Sorbonne Université, France

Licence: Jonathan Lejeune, Oriented-Object Programming, L3, Sorbonne Université, France

Licence: Franck Petit, Advanced C Programming, L2, Sorbonne Université, France

Licence: Swan Dubois, Jonathan Lejeune, Julien Sopena, Introduction to operating systems, L2, Sorbonne Université, France

Licence: Mesaac Makpangou, C Programming Language, 27 h, L2, Sorbonne Université, France

Ingénieur 4ème année : Marc Shapiro, Introduction aux systèmes d'exploitation, 26 h, M1, Polytech Sorbonne Université, France.

Licence : Philippe Darche (coordinator), Architecture of Internet of Things (IoT), 2 × 32h, L3, Institut Universitaire Technologique (IUT) Paris Descartes, France.

Engineering School: Philippe Darche (coordinator), Solid-State Memories, 4th year, ESIEE, France.

DUT: Philippe Darche (coordinator), Introduction to Computer Systems - Data representation, 60h, Institut Universitaire Technologique (IUT) Paris Descartes, France.

DUT: Philippe Darche (coordinator), Computer Architecture, 32h, Institut Universitaire Technologique (IUT) Paris Descartes, France.

DUT: Philippe Darche (coordinator), Computer Systems Programming, 80h, Institut Universitaire Technologique (IUT) Paris Descartes, France.

8.2.2. Supervision

PhD: João Paulo de Araujo, “L'exécution efficace d'algorithmes distribués dans les réseaux véhiculaires”, funded by CNPq (Brésil), Sorbonne Univ, Apr. 2019. Advised by Pierre Sens and Luciana Arantes.

PhD: Sébastien Bouchard, “Gathering with faulty robots”, Sorbonne Univ., Sep. 2019. Advised by Swan Dubois, Franck Petit, Yoann Dieudonné (University of Picardy Jules Verne)

PhD: Marjorie Bournat, “Speculation and Graceful Degradability for Robots in Highly Dynamic Environments”, Sorbonne Univ., Jun. 2019. Advised by Swan Dubois, Franck Petit, Yoann Dieudonné (University of Picardy Jules Verne)

PhD: Damien Carver, “HACHE : Horizontal Cache cHorEgraphy - Toward automatic resizing of shared I/O caches.”, Sorbonne Univ., May 2019. Advised by Sébastien Monnet, Julien Sopena, Dimitri Refauvelet (Magency).

CIFRE PhD in progress: José Alves Esteves, “Adaptation dynamique en environnements répartis contraints”, Sorbonne Univ., since Sep. 2019. Advised by Pierre Sens and Amina Boubendir Orange Labs.

PhD in progress: Arnaud Favier, “Algorithmes de coordination répartis dans des réseaux dynamiques”, Sorbonne Univ., since Sep. 2018. Advised by Pierre Sens and Luciana Arantes.

PhD in progress: Saalik Hatia, “Efficient management of memory and storage for CRDTs”, Sorbonne Univ., since Oct. 2018. Advised by Marc Shapiro.

CIFRE PhD in progress: Guillaume Fraysse, Orange Lab - Inria, “Ubiquitous Resources for Service Availability”, since Jul. 2017. Advised by Pierre Sens, Imen Grida Ben Yahia (Orange-Lab) , Jonathan Lejeune, Julien Sopena.

PhD in progress: Francis Laniel, “Vers une utilisation efficace de la mémoire non volatile pour économiser l’énergie.” Sorbonne Univ., since Sept. 2017. Advised by Marc Shapiro, Julien Sopena, Jonathan Lejeune.

PhD in progress: Gabriel Le Boudier, “Autonomic synchronization”, Sorbonne Univ., since Sep. 2019. Advised by Franck Petit.

PhD in progress: Benoît Martin, “Protocol de cohérence hybride: de la cohérence causal à la cohérence forte”, Sorbonne Univ., since Sep. 2019. Advised by Mesaac Makpangou and Marc Shapiro.

PhD in progress: Sreeja Nair, “Just-Right Consistency for massive gee-replicated storage”, Sorbonne Univ., since Apr. 2018. Advised by Marc Shapiro.

PhD in progress: Laurent Prosper, “Abstractions, langage et runtime pour les systèmes distribués”, Sorbonne Univ., since Sep. 2019. Advised by Marc Shapiro.

CIFRE PhD in progress: Jonathan Sid-Otmane. “Étude des critères de distribution et de l’usage d’une base de données distribuée pour un OS Telco”, since Dec. 2017. Advised by Marc Shapiro, with Sofiane Imadali and Frédéric Martelli, Orange Labs.

PhD in progress: Ilyas Toumlilt, “Bridging the CAP gap, all the way to the edge”, Sorbonne Univ., since Sep. 2016. Advised by Marc Shapiro.

CIFRE PhD in progress: Dimitrios Vasilas, “Indexing in large-scale storage systems”, Sorbonne Univ., since Sep. 2016. Advised by Marc Shapiro, with Brad King, Scalify.

PhD in progress: Daniel Wladdimiro, “Adaptation dynamique en environnements répartis contraints”, Sorbonne Univ., since Sep. 2019. Advised by Pierre Sens and Luciana Arantes.

PhD in progress: Daniel Wilhelm, “Algorithmes de diffusion causale dans les systèmes répartis dynamique”, Sorbonne Univ., since Oct. 2019, Pierre Sens and Luciana Arantes.

8.2.3. Juries

Franck Petit was the reviewer of:

- David Ilcinkas, HDR, LaBRI, Bordeaux

Pierre Sens was the reviewer of:

- Heithem Abbes, HDR, LIPN, Villetaneuse
- Xavier Etchevers, HDR, LIG, Univ. Grenoble
- Nicolas Aussel, PhD, SAMOVAR, Telecom Sud Paris
- Paul Chaignon, PhD, LORIA, Nancy
- Jad Darrous, PhD, LIP, ENS-Lyon
- Umar Ozeer, PhD, LIG, Univ. Grenoble
- Bharati Sinha, PhD, National Institute of Technology Kurukshetra, India
- Amir Teshome Wonjiga, PhD, IRISA, Rennes

Pierre Sens was Chair of

- Julien Loudet, PhD, DAVID, UVSQ
- Asma Berriri, PhD, SAMOVAR, Telecom Sud Paris

Marc Shapiro was a reviewer for the CSD (mid-thesis committee) for Khaled Zaouk, PhD student of Yanlei Diao at École Polytechnique.

8.3. Popularization

8.3.1. Articles and contents

- Swan Dubois and Franck Petit coauthored the book entitled “*Introduction to Distributed Self-Stabilizing Algorithms*” [35], that aims at being a comprehensive and pedagogical introduction to the concept of *self-stabilization*.
- Marc Shapiro co-authored two entries for the Encyclopedia of Big Data Technologies (published by Springer, 2019):
 - “Database Consistency Models” [38].
 - “Conflict-Free Replicated Data Types CRDTs” [37].
- Marc Shapiro contributed the post “Living at the edge, safely” to the LightKone blog [6].

DYOGENE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

In collaboration with M. Vojnovic (London School of Economics), A. Basic and L. Massoulié organized an international workshop on Machine Learning and User Decision Making <https://ml-udm.github.io/> at the ENS on May 23-24, 2019.

10.1.1.1. Member of the Organizing Committees

Members of Dyogene (co-)organized the following events:

- ERC inaugural workshop *Processus ponctuels et graphes aléatoires unimodulaires* <https://project.inria.fr/ercnemo/fr/presentation/>,
- Scientific session *Modélisation et analyse des systèmes de vélo-partage* at RFTM2019 (2emes Rencontres Francophones Transport et Mobilité, 11-13/06/2019 Montréal); <https://symposia.cirrelt.ca/RFTM2019/>
- A. Basic: co-lead (with E. Hyon, LIP 6) of the research group COSMOS (Stochastic optimization and control, modeling and simulation) of the GDR-RO; <http://gdrro.lip6.fr/?q=node/78>. Includes scientific organization of a one-day workshops per year (approx. 50 participants); In 2019: 8th GDT COSMOS workshop: "Stochastic Optimization and Reinforcement Learning"; November 2019; <http://gdrro.lip6.fr/?q=node/211>
- A. Basic: one week workshop "Flexible operation and advanced control for energy systems" within INI Cambridge program "The mathematics of energy systems", January 2019, Cambridge, UK, <https://www.newton.ac.uk/event/mesw01>

10.1.2. Journal

10.1.2.1. Reviewer - Reviewing Activities

All members of the team act as reviewers for numerous scientific journals.

10.1.3. Invited Talks

- Mathematics Colloquium at *Paris-Descartes*, November 2019, F. Baccelli (talk on high dimensional stochastic geometry);
- Mathematics Colloquium at *Karlsruhe Institute of Technology*, July 2019, F. Baccelli (talk on unimodular dimensions);
- Invited lecture at the workshop *Modern Applied Probability, in celebration of Sergey Foss' 65th birthday*, ICMS, Edinburgh, May 2019 F. Baccelli (talk on particle systems); <https://www.icms.org.uk/sergey65.php>
- Invited lecture at the workshop *Point processes in space, time, and beyond*, Aalborg University, May 2019 F. Baccelli (talk on random graphs); <http://people.math.aau.dk/~rw/PointSpaceBeyond/>
- Mathematics Colloquium at *Institut Elie Cartan de Lorraine*, April 2019 F. Baccelli (on unimodular random metric spaces);
- Colloquium at *CEA LETI*, Grenoble, January 2019, F. Baccelli (talk on wireless stochastic geometry);
- Training School on Machine Learning for Communications, ISEP, Paris, B. Błaszczyszyn; <https://sites.google.com/view/mlc-training-school/>

- “STAR workshop on random graphs”, Groningen Netherlands, B. Błaszczyszyn; <http://www.math.rug.nl/~hansen/STAR2019/>
- invited talk in the Department of Statistics and Data Science Yale University, September 2019, M. Lelarge;
- Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, April 2019, A. Busic (on grid balancing through distributed control of flexible loads) ; video: <https://www.newton.ac.uk/seminar/20190502143015301>
- Simons Institute, UC Berkeley, June 2019, A. Busic (on optimizing mean-field dynamics for distributed control of flexible loads)
- Journées Scientifiques Inria, Lyon, June 2019, A. Busic (Optimisation/contrôle dans des réseaux électriques)
- CWI – Inria workshop, September 2019, Ana Busic (Optimizing mean-field dynamics for flexible loads control in power systems)
- CMAP seminar, École Polytechnique, December 2019, A. Busic (on optimal control in dynamic matching systems)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Licence: B. Błaszczyszyn (Cours) Théorie de l’information et du codage 24 heqTD, L3, ENS Paris.
- Licence: A. Busic (Cours) and S. Samain (TD) Structures et algorithmes aléatoires 60heqTD, L3, ENS Paris.
- Licence: L. Massoulié (Cours) Social and Communication networks 60heqTD, L3, l’X.
- Master: B. Błaszczyszyn (Cours) Processus ponctuels, graphes aléatoires et géométrie stochastique 39heqTD, M2 Probabilités et Modèles Aléatoires, UPMC.
- Master: A. Busic (Cours) and L. Stephan (TD) Modèles et algorithmes de réseaux 60heqTD, M1, ENS Paris.
- Master: A. Busic (Cours) Fondements de la modélisation des réseaux 18 heqTD, M2 MPRI.
- Master: M. Lelarge (Cours) Deep Learning Do it Yourself, M1, ENS Paris. X, X-HEC <https://mlelarge.github.io/dataflowr-web/>
- Master: M. Lelarge (Cours) Deep Learning Do it Yourself, M1, ENS Paris.
- Master: L. Massoulié (Cours) Inference in large random graphs, M2 Université d’Orsay.
- Summer school: M. Lelarge (Cours) HANDS-ON TOUR TO DEEP LEARNING WITH PYTORCH, https://mlelarge.github.io/dataflowr-web/cea_edf_inria.html.
- Invited mini-course: L. Massoulié at Journée spéciale Stat Math 2019 of Société Française de Statistiques, Institut Henri Poincaré.

10.2.2. Supervision

- PhD: Léo Miolane, “High dimensional statistics”, defended in 2019, advised by M. Lelarge. [2]
- PhD: Md Umar Hashmi, “Decentralized control for renewable integration in smartgrids”, defended in 2019, advised by A. Busic. [1]
- PhD in progress: Alexis Galland, Deep Learning on Graphs, since 2017, advised by M. Lelarge.
- PhD in progress: Quentin Le Gall “Crowd networking : modélisation de la connectivité D2D” since October 2017; PhD CIFRE co-advised by B. Błaszczyszyn and E. Cali (Orange).
- PhD in progress: Antoine Brochard “Signal processing for point processes and statistical learning for telecommunications”, since September 2018; PhD CIFRE co-advised by B. Błaszczyszyn and Georgios Paschos (Huawei).

- PhD in progress: Sébastien Samain, “Monte Carlo methods for performance evaluation and reinforcement learning”, since November 2016, advised by A. Busic,
- PhD in progress: Arnaud Cadas, “Dynamic matching models”, since October 2017, supervised by A. Busic.
- PhD in progress: Michel Davydov, since September 2019, F. Baccelli.
- PhD in progress: Luca Ganassali, since September 2019.
- PhD in progress: Hadrien Hendrikx, since 2019
- PhD in progress: Sayeh Khaniha, form 2019, supervised by F. Baccelli.
- PhD in progress: Edouard Pineau, since 2019,
- PhD in progress: Bharath Roy, since 2019, supervised by F. Baccelli and B. Błaszczyszyn,
- PhD in progress: Ilia Shilov, since 2019, supervised by A. Busic,
- PhD in progress: Ludovic Stephan, since 2019.

10.2.3. Juries

- F. Baccelli: PhD reviewer of **Gourab GHATAK**, Télécom Paris; HDR reviewer of **Marios KOUNTOURIS**, Université Paris-Sud 1; HDR jury member of **Raphaël LACHIEZE-REY**, Université Paris-Descartes.
- B. Błaszczyszyn: PhD reviewer of: **Sanjoy Kumar JHAWAR**, Indian Institute of Science Bangalore, India; **Arnaud POINAS**, Université de Rennes 1; HDR reviewer of: **Marios KOUNTOURIS**, Université Paris-Sud 1; PhD jury member of : **Jalal RACHAD**, Télécom Paris.
- C. Fricker: PhD reviewer of: **Celine COMTE**, Université Paris-Saclay; PhD jury member of: **Hamza BEN AMMAR**, Université de Rennes 1.
- M. Lelarge: PhD jury member Xiaoyi MAI, Université Paris-Saclay.

EVA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organization

10.1.1.1. General Chair, Scientific Chair

- **Thomas Watteyne** is TPC co-chair of the 6th International Workshop on Computer and Networking Experimental Research using Testbeds (CNERT), held in conjunction with IEEE INFOCOM, Paris, France, 29 April-2 May, 2019. More information at <https://infocom2019.ieee-infocom.org/cnert-computer-and-networking-experimental-research-using-testbeds>.
- **Paul Muhlethaler** was general co-chair with Eric Renault of the second conference of application of Machine Learning for Networks (MLN 2019 3-5 December 2019), a conference hosted by Inria Paris. Two tutorials and two keynotes were given:
 - *Cloud Solution Architect (Artificial Intelligence and Machine Learning)* by Franck Gailard (Microsoft, France) [tutorial 1].
 - *Towards intelligent mobile networks* by Marie Line Alberi Morel (NOKIA Bell Lab, France) and Kamal Singh (Télécom Saint-Etienne / University Jean Monnet, France) [tutorial 2].
 - *From Learning to Reasoning : A topos perspective* by Jean-Claude Belfiore (Huawei, France) [keynote 1].
 - *Paradigm shifts in communication networks: cloud-native, automation and AI/ML* by Alberto Conte (NOKIA Bell Labs, France) [keynote 2]

Thirty two technical presentations have been given during the three days of the MLN 2019 conference.

- **Pascale Minet** was general co-chair with Leila Saidane from ENSI (Tunisia) of the PEMWN 2019 conference, the 8th IFIP/IEEE international conference on Performance Evaluation and Modeling of Wired and Wireless Networks, technically co-sponsored by IFIP WG6.2 and IEEE ComSoc. This conference was held in Paris (Inria Research Center), the 26th, 27th and 28th of November 2018. Three tutorials were given:
 - *Information Centric Networks: Toward an Internet of Named Objects* by Andrea Araldo, Telecom Sud-Paris, France.
 - *Shannon versus Turing, the limit of Artificial Intelligence* by Philippe Jacquet, Inria, Paris-Saclay, France.
 - *5G: Key technologies, standard and evolutions* by Marceau Coupechoux, Telecom Paris-Tech, France.

Fourteen technical presentations have been given during the three days of the PEMWN 2019 conference.

10.1.1.2. Member of the Organizing Committees

- **Paul Muhlethaler** organized the DGA Inria workshop on the topic "Au dela des communications quantiques, les réseaux quantique" in May 2019.

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

- **Paul Muhlethaler** was a Steering committee member of IWVSC 2019.

- **Pascale Minet** was chair of the Technical Program Committee of PEMWN 2019, 8th International Conference on Performance Evaluation and Modeling in Wired and Wireless Networks, November 2019.

10.1.2.2. Member of Conference Program Committees

- **Pascale Minet**
 - CoRes 2019, 4emes Rencontres Francophones sur la Conception de Protocoles, l'Evaluation de Performance et l'Expérimentation des Réseaux de Communication, May 2019.
 - EUSPN 2019, 10th International Conference on Emerging Ubiquitous Systems and Pervasive Networks (EUSPN), November 2019.,
 - GlobeCom 2019, IEEE Global Communications Conference, December 2019.
 - IWVSC 2019, 3rd International Workshop on Vehicular Adhoc Networks for Smart Cities, November 2019,
 - MLN 2019, Machine Learning for Networking, December 2019,
 - MSPN 2019, 5th International Conference on Mobile, Secure and Programmable Networking, June 2019,
 - PECCS 2019, 9th International conference on Pervasive and Embedded Computing and Communication Systems, September 2019,
 - VTC 2019, 88th IEEE Vehicular Technology Conference, September 2019,
 - Wireless Days 2019, IFIP/IEEE Wireless Days, April 2019,
 - WiSEE 2019, 7th IEEE International Conference on Wireless for Space and Extreme Environments, October 2019.
- **Paul Muhlethaler:**
 - ISCC 2019, 30 June -28 July 2019, Barcelona Spain,
 - MLN 2019, Machine Learning for Networking, December 2019, Paris.
 - PEMWN 2019, 8th International Conference on Performance Evaluation and Modeling in Wired and Wireless Networks, 26 - 28 November 2019, Paris,
 - Wireless Days, IFIP/IEEE Wireless Days 24 - 26 April 2019, Manchester

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

- **Paul Muhlethaler**
 - Reviewer Ad Hoc Networks Journal (Elsevier),
 - Reviewer Annals of Telecommunications,
 - Reviewer International Journal of Distributed Sensor Networks. Hindawi,
 - Reviewer IEEE Transactions on Information Theory,
 - Reviewer IEEE Transactions on Vehicular Technology,
 - Reviewer IEEE Transactions on Wireless Communications,
 - Reviewer MDPI Sensors
- **Pascale Minet**
 - Acta Astronautica,
 - Ad Hoc Networks,
 - Annals of Telecommunications,
 - Computer Communications,

- Computer Networks,
- Engineering Applications of Artificial Intelligence,
- Future Internet,
- IEEE Access,
- IEEE Internet of Things,
- IEEE Transactions on Mobile Computing,
- IEEE Transactions on Industrial Informatics,
- International Journal of Advanced Intelligence Paradigms,
- International Journal of Communication Systems,
- Sensors Journal,
- Wireless Networks.
- Nadjib Achir
 - Reviewer Sensor Networks (MDPI)
 - Reviewer Wireless Communications and Mobile Computing (Wiley)
 - Reviewer Internet of Things Journal (IEEE)
 - Reviewer Ad Hoc Networks Journal (Elsevier)
- Selma Boumerdassi
 - Reviewer Ad Hoc Networks Journal (Elsevier);
 - Reviewer The journal of Future Generation Computer Systems (Elsevier).
- Samia Bouzefrane
 - The International Journal of Computer and Telecommunications Networking (Elsevier),
 - The IEEE Transactions on Mobile Computing,
 - The Information and Software Technology Journal (Elsevier)
 - The Springer Multimedia Tools and Application Journal
 - The ACM Transaction on Internet Technology
 - The Concurrency and Computation Practice and Experience Journal
 - the Journal of Systems and Software (Elsevier)

10.1.4. Invited Talks

- **Thomas Watteyne**
 - SmartMesh IP. Captronic/Arrow mesh networking day. Montpellier, France, 13 June 2019.
 - OpenTestbed; Poor Man's IoT Testbed. TILECS Workshop. Grenoble, France. 4 July 2019.
 - SmartMesh IP. Captronic/Arrow mesh networking day. Toulouse, France, 18 April 2019.
- **Pascale Minet**
 - "Estimation and Prediction of Link Quality in Low-Power Wireless Mesh Networks" at the Machine Learning for Networking (MLN) conference, December 2019, Paris.

10.1.5. Leadership within the Scientific Community

Thomas Watteyne co-chairs the IETF 6TiSCH standardization group. **Malisa Vucinic** co-chairs the IETF LAKE standardization group.

10.1.6. Scientific Expertise

- **Thomas Watteyne** regularly consults with major player in the (Industrial) IoT space.
- **Pascale Minet** was also reviewer of a proposal submitted to the Call for Generic Projects issued by the ANR.

10.1.7. Research Administration

- **Thomas Watteyne** is member of the Inria-Paris “Commission de Developpement Technologique”, since 2018, where we ensure Inria project teams get sufficient engineering resources to change the world.
- **Paul Muhlethaler** is member of the Inria-Paris “Comite de Centre”, since 2016 (alternate of Michel Kern).
- **Thomas Watteyne** is member of the Inria-Paris “Comite de Centre”, since 2016, where we work on making sure Inria-Paris will always remain one of the greatest places to work at!
- **Pascale Minet** is member of the Inria-Paris “Commission d’Emplois Scientifiques” (Delegations, Postdocs, and PhD scholarship) since 2018.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- **Thomas Watteyne** teaches 6-week course on IoT, with associated hands-on labs. Undergraduate level. ENSTA ParisTech. Together with Tarak Arbi and Dominique Barthel. Spring 2019.
- **Thomas Watteyne** teaches 1/2-day crash course on the Industrial IoT, Telecom ParisTech. Graduate level. 27 September 2019.
- **Thomas Watteyne** teaches 1-day hands-on course on IIoT, and support of subsequent projects, MSc level, University College London, 6 February 2019.

10.2.2. Supervision

- PhD : Fouzi Boukhalfa, Low and high reliability access in Vehicular Ad-hoc NETWORKS. Sorbonne University. **Paul Muhlethaler**.
- PhD (ongoing) Razanne Abu Aisheh, Robotics, Sorbonne University. **Thomas Watteyne**,
- PhD (ongoing) Mina Rady, Heterogeneous architectures for the IoT, Sorbonne University. **Thomas Watteyne** and **Paul Muhlethaler**, under a CIFRE agreement with Orange Labs, Meylan, France.
- PhD (defended) Jonathan Munoz, Time slotted systems for long range communications, Sorbonne University, **Thomas Watteyne** and **Paul Muhlethaler**.
- PhD (in progress) Amar Abane, Name Data Networks in the Internet of Things, Cnam. Samia Bouzefrane and **Paul Muhlethaler**.
- PhD (in progress) Abdallah Soheby, Etude et evaluation de la dissemination des informations dans la 5G. Eric Renault and **Paul Muhlethaler**.
- PhD (in progress) Mamoudou Sangara, Utilisation de techniques de Machine Learning dans les reseaux VANETs. Samia Bouzefrane and **Paul Muhlethaler**.
- PhD (in progress) Iman Hmedoush, Connection protocols for the 5G IoT. Cedric Adjih and **Paul Muhlethaler**.

10.2.3. Juries

- HdR:
 - Hichem Sedjelmaci “Attacks Detection and Prediction Frameworks Based on AI Techniques for Wireless and Mobile Networks” Univeristy de Burgundy, October 2019 **Paul Muhlethaler** reviewer.

- Katia Jaffres-Runser, "Modélisations et Optimisation Multicritere de Réseaux", Institut National Polytechnique de Toulouse, July 2019, **Pascale Minet** reviewer.
- PhD:
 - Vasileios Kotsiou, "Reliable Communications for the Industrial Internet of Things", University of Strasbourg, France, **Thomas Watteyne** examiner.
 - Meriem Smache, "Deterministic Network Security for the Industrial Internet of Things (IIoT)", CEA and École des Mines de Saint-Étienne, France, **Thomas Watteyne** examiner.
 - Esteban Municio, "Towards Scalable and End-to-End Programmable Industrial Internet of Things", University of Antwerpen, Belgium, **Thomas Watteyne** examiner.
 - Amel Arfaoui, "Game based for security of Intenet of things" Univeristy de Burgundy, 15 October 2019 **Paul Muhlethaler** examiner
 - Amar Abane, "Une Architecture Réaliste pour l'IOT" Cnam and University of Tizi Ouzou 2 December 2019 **Paul Muhlethaler** examiner
 - Karen Boulos, "BBU-RRH Association Optimization in Cloud-Radio Access Networks", University of Paris-Saclay, July 2019, **Pascale Minet** reviewer.
 - Jinpeng Wang, "Impact of Mobility and Deployment in Confined Spaces on Low Power and Lossy Network", University of Clermont-Auvergne, July 2019, **Pascale Minet** examiner.
 - Yoann Desmouceaux, "Network Layer Protocols for Data Center Scalability", University of Paris-Saclay, April 2019, **Pascale Minet** examiner.

10.3. Popularization

10.3.1. Dans les Medias

- **Thomas Watteyne**
 - Falco : Des capteurs pour connecter ports et plaisanciers. BoatIndustry, 15 November 2019
 - Agde : le port connecté, une réalité. Midi Libre, 31 October 2019.
 - Gestion portuaire : les ports de Lorient et Cap d'Agde entrent dans l'ère du port connecté, Actu Maritime, 1 August 2019.
 - Port connecté : un nouveau cap franchi grâce à Falco (an interview of our startup's CEO Elsa Nicol), inria.fr, 18 February 2019.

10.3.2. Creation of media or tools for science outreach

A video concerning the research on protocols for VANETs by Mohamed Hadded has been made by Inria.

GANG Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

Adrian Kosowski was one of the organizing chairs of the workshop “CELLS: Computing among Cells”, co-located with DISC 2019, Budapest, October 2019.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

Carole Delporte was PC member of DISC 2019

Carole Delporte was PC member of NETYS 2019

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Pierre Fraigniaud is a member of the Editorial Board of Distributed Computing (DC).
- Pierre Fraigniaud is a member of the Editorial Board of Theory of Computing Systems (TOCS).

9.1.4. Invited Talks

Carole Delporte, Collège de France, Protocoles de population, Paris mars 2019.

Michel Habib International Summer School on Networks and Evolution, “Centralities in Networks”, Roscoff juin 2019.

Michel Habib Participation to a CIMPA Research School in Tabriz (IRAN) “Graphs, Algorithms and Randomness”, june 2019. Cours de 8h: “Efficient graph algorithms and applications”.

Michel Habib "Diameter computations in graphs and shortest paths problems", Université Libre de Bruxelles, june 2019

Pierre Fraigniaud was invited speaker [18] at SIROCCO 2019.

9.1.5. Research Administration

- Hugues Fauconnier is director of the UFR d’informatique of Université Paris Diderot.
- Carole Delporte-Gallet is deputy director of the UFR d’informatique of Université Paris Diderot.
- Laurent Viennot is leader of the “Algorithms and discrete structures” department of the Institute de Recherche en Informatique Fondamentale (IRIF).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: Carole Delporte and Hugues Fauconnier, Algorithmique distribuée avec mémoire partagée, 6h, M2, Université Paris Diderot

Master: Hugues Fauconnier, Cours Algorithmes répartis, 33h, M2, Univ. Paris Diderot

Master: Carole Delporte, Cours et TP Protocoles des services internet, 44h, M2, Univ. Paris Diderot

Master: Carole Delporte, Cours Programmation répartie, 33h, M2, Univ. Paris Diderot

Master: Carole Delporte and Hugues Fauconnier, Théorie et pratique de la concurrence, 48h, M1, Université Paris Diderot

Licence: Carole Delporte and Hugues Fauconnier, Culture informatique, 16h, L2, Univ. Paris Diderot

Licence: Boufkhad Yacine, Algorithmique et Informatique, 132h, L1, IUT de l'Université Paris Diderot

Licence: Boufkhad Yacine, Programmation Orientée Objet, 60h, L2, IUT de l'Université Paris Diderot

Licence: Boufkhad Yacine, Traitement de données, 16h, L2, IUT de l'Université Paris Diderot

DU Santé connectée, 12h réseau, Université Paris Diderot, public divers.

Master: Pierre Fraigniaud, Algorithmique parallèle et distribuée, 24h, Ecole Centrale Supélec Paris, M2

Master: Adrian Kosowski, Competitive Programming - Modal Course, 60h, M1, École Polytechnique

Licence: Adrian Kosowski, Design and Analysis of Algorithms, 32h, L3, École Polytechnique

Master: Pierre Fraigniaud and Adrian Kosowski, Algorithmique distribuée pour les réseaux, 24h, M2, Master Parisien de Recherche en Informatique (MPRI)

Master: Fabien de Montgolfier, Grand Réseaux d'Interaction, 44h, M2, Univ Paris Diderot

Licence: Fabien de Montgolfier, Protocoles Réseau (TP/TD), 24h, M1, Univ Paris Diderot

Licence: Fabien de Montgolfier, Programmation avancée (cours/TD/projet, bio-informatique), 52h, L3, Univ. Paris Diderot

Master: Fabien de Montgolfier, Algorithmique avancée (bio-informatique), 26h, M1, Univ Paris Diderot

Licence: Fabien de Montgolfier, Algorithmique (TD), 26h, L3, Ecole d'Ingénieurs Denis Diderot

License : Laurent Viennot, Algorithms, 12h, L3-M1 BioInfo, Univ. Paris Diderot

Licence: Pierre Charbit, Elements d'Algorithmique, 24h, L2, Université Paris Diderot, France

Licence: Pierre Charbit, Automates finis, 36h, L2, Université Paris Diderot, France

Licence: Pierre Charbit, Internet et Outils, 52h, L1, Université Paris Diderot, France

Master: Pierre Charbit, Programmation Objet, 60h, M2Pro PISE, Université Paris Diderot, France

Master: Pierre Charbit, Algorithmique de Graphes, 12h, M2 MPRI, Université Paris Diderot, France

9.2.2. Supervision

PhD defended: Simon Collet (co-advised by Amos Korman and Pierre Fraigniaud) [1]. Title of thesis is: "Algorithmic Game Theory Applied to Biology". Started September 2015, defended on December 9th, 2019 at Paris University.

PhD defended: Mengchuan Zou (co-advised by Adrian Kosowski and Michel Habib) [2]. Title of thesis is: "Aspects of Efficiency in Selected Problems of Computation on Large Graphs". Started October 2016, defended on December 17th at Paris University.

PhD in progress: Brieuc Guinard (advised by Amos Korman). Title of thesis is: "Algorithmic Aspects of Random Biological Processes". Started October 2016.

PhD in progress: Zeinab Nehaï (advised by Hugues Fauconnier). Title of thesis is : Verification of block-chain. Started October 2018

9.2.3. Juries

Carole Delporte-Gallet was on the jury committee of the PhD thesis of Jules Chouquet "Une Géométrie du calcul Réseaux de preuve, Appel-Par-Pousse-Valeur et topologie du Consensus", december 2019, Université Paris Diderot.

Carole Delporte-Gallet was the referee and on jury committee of the HDR thesis of Janna Burman "Distributed Computing with Limited Resources", december 2019, Université Paris-Sud.

Carole Delporte-Gallet was on the jury committee of the PhD thesis of Marjorie Bournat "Graceful Degradation and Speculation for Robots in Highly Dynamic Environments, june 2019, Sorbonne Université.

Hugues Fauconnier was on jury committee of the HDR thesis of Janna Burman "Distributed Computing with Limited Resources", december 2019, Université Paris-Sud.

Michel Habib was on the jury committee of the PhD thesis of Keno Merckx "Optimization and Realizability Problems for Convex Geometries", june 2019, Université Libre de Bruxelles.

Michel Habib was on the jury committee of the PhD thesis of Mehdi Kosravian Ghadikolaei, "Extension of NP Optimization problems", Université de Dauphine (PSL), july 2019.

Michel Habib was on the jury committee of the PhD thesis of Antoine Roux, "Etude d'un code correcteur linéaire pour le canal à effacements de paquets et optimisation par comptage de forêts et calcul modulaire" at Sorbonne University, december 2019.

Laurent Viennot was referee and on the jury committee of the HDR thesis of David Ilcinkas on "Structural Information in Distributed Computing" at the University of Bordeaux, March 2019.

Laurent Viennot was referee and on the jury committee of the PhD thesis of Sébastien Ratel on "Densité, VC-dimension et étiquetages de graphes" at the University of Aix-Marseille, November 2019.

GANG Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

Adrian Kosowski was one of the organizing chairs of the workshop “CELLS: Computing among Cells”, co-located with DISC 2019, Budapest, October 2019.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

Carole Delporte was PC member of DISC 2019

Carole Delporte was PC member of NETYS 2019

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Pierre Fraigniaud is a member of the Editorial Board of Distributed Computing (DC).
- Pierre Fraigniaud is a member of the Editorial Board of Theory of Computing Systems (TOCS).

9.1.4. Invited Talks

Carole Delporte, Collège de France, Protocoles de population, Paris mars 2019.

Michel Habib International Summer School on Networks and Evolution, “Centralities in Networks”, Roscoff juin 2019.

Michel Habib Participation to a CIMPA Research School in Tabriz (IRAN) “Graphs, Algorithms and Randomness”, june 2019. Cours de 8h: “Efficient graph algorithms and applications”.

Michel Habib “Diameter computations in graphs and shortest paths problems”, Université Libre de Bruxelles, june 2019

Pierre Fraigniaud was invited speaker [18] at SIROCCO 2019.

9.1.5. Research Administration

- Hugues Fauconnier is director of the UFR d’informatique of Université Paris Diderot.
- Carole Delporte-Gallet is deputy director of the UFR d’informatique of Université Paris Diderot.
- Laurent Viennot is leader of the “Algorithms and discrete structures” department of the Institute de Recherche en Informatique Fondamentale (IRIF).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: Carole Delporte and Hugues Fauconnier, Algorithmique distribuée avec mémoire partagée, 6h, M2, Université Paris Diderot

Master: Hugues Fauconnier, Cours Algorithmes répartis, 33h, M2, Univ. Paris Diderot

Master: Carole Delporte, Cours et TP Protocoles des services internet, 44h, M2, Univ. Paris Diderot

Master: Carole Delporte, Cours Programmation répartie, 33h, M2, Univ. Paris Diderot

Master: Carole Delporte and Hugues Fauconnier, Théorie et pratique de la concurrence, 48h, M1, Université Paris Diderot

Licence: Carole Delporte and Hugues Fauconnier, Culture informatique, 16h, L2, Univ. Paris Diderot

Licence: Boufkhad Yacine, Algorithmique et Informatique, 132h, L1, IUT de l'Université Paris Diderot

Licence: Boufkhad Yacine, Programmation Orientée Objet, 60h, L2, IUT de l'Université Paris Diderot

Licence: Boufkhad Yacine, Traitement de données, 16h, L2, IUT de l'Université Paris Diderot
DU Santé connectée, 12h réseau, Université Paris Diderot, public divers.

Master: Pierre Fraigniaud, Algorithmique parallèle et distribuée, 24h, Ecole Centrale Supélec Paris, M2

Master: Adrian Kosowski, Competitive Programming - Modal Course, 60h, M1, École Polytechnique

Licence: Adrian Kosowski, Design and Analysis of Algorithms, 32h, L3, École Polytechnique

Master: Pierre Fraigniaud and Adrian Kosowski, Algorithmique distribuée pour les réseaux, 24h, M2, Master Parisien de Recherche en Informatique (MPRI)

Master: Fabien de Montgolfier, Grand Réseaux d'Interaction, 44h, M2, Univ Paris Diderot

Licence: Fabien de Montgolfier, Protocoles Réseau (TP/TD), 24h, M1, Univ Paris Diderot

Licence: Fabien de Montgolfier, Programmation avancée (cours/TD/projet, bio-informatique), 52h, L3, Univ. Paris Diderot

Master: Fabien de Montgolfier, Algorithmique avancée (bio-informatique), 26h, M1, Univ Paris Diderot

Licence: Fabien de Montgolfier, Algorithmique (TD), 26h, L3, Ecole d'Ingénieurs Denis Diderot

License : Laurent Viennot, Algorithms, 12h, L3-M1 BioInfo, Univ. Paris Diderot

Licence: Pierre Charbit, Elements d'Algorithmique, 24h, L2, Université Paris Diderot, France

Licence: Pierre Charbit, Automates finis, 36h, L2, Université Paris Diderot, France

Licence: Pierre Charbit, Internet et Outils, 52h, L1, Université Paris Diderot, France

Master: Pierre Charbit, Programmation Objet, 60h, M2Pro PISE, Université Paris Diderot, France

Master: Pierre Charbit, Algorithmique de Graphes, 12h, M2 MPRI, Université Paris Diderot, France

9.2.2. Supervision

PhD defended: Simon Collet (co-advised by Amos Korman and Pierre Fraigniaud) [1]. Title of thesis is: "Algorithmic Game Theory Applied to Biology". Started September 2015, defended on December 9th, 2019 at Paris University.

PhD defended: Mengchuan Zou (co-advised by Adrian Kosowski and Michel Habib) [2]. Title of thesis is: "Aspects of Efficiency in Selected Problems of Computation on Large Graphs". Started October 2016, defended on December 17th at Paris University.

PhD in progress: Brieuc Guinard (advised by Amos Korman). Title of thesis is: "Algorithmic Aspects of Random Biological Processes". Started October 2016.

PhD in progress: Zeinab Nehaï (advised by Hugues Fauconnier). Title of thesis is : Verification of block-chain. Started October 2018

9.2.3. Juries

Carole Delporte-Gallet was on the jury committee of the PhD thesis of Jules Chouquet "Une Géométrie du calcul Réseaux de preuve, Appel-Par-Pousse-Valeur et topologie du Consensus", december 2019, Université Paris Diderot.

Carole Delporte-Gallet was the referee and on jury committee of the HDR thesis of Janna Burman "Distributed Computing with Limited Resources", december 2019, Université Paris-Sud.

Carole Delporte-Gallet was on the jury committee of the PhD thesis of Marjorie Bournat "Graceful Degradation and Speculation for Robots in Highly Dynamic Environments, june 2019, Sorbonne Université.

Hugues Fauconnier was on jury committee of the HDR thesis of Janna Burman "Distributed Computing with Limited Resources", december 2019, Université Paris-Sud.

Michel Habib was on the jury committee of the PhD thesis of Keno Merckx "Optimization and Realizability Problems for Convex Geometries", june 2019, Université Libre de Bruxelles.

Michel Habib was on the jury committee of the PhD thesis of Mehdi Kosravian Ghadikolaei, "Extension of NP Optimization problems", Université de Dauphine (PSL), july 2019.

Michel Habib was on the jury committee of the PhD thesis of Antoine Roux, "Etude d'un code correcteur linéaire pour le canal à effacements de paquets et optimisation par comptage de forêts et calcul modulaire" at Sorbonne University, december 2019.

Laurent Viennot was referee and on the jury committee of the HDR thesis of David Ilcinkas on "Structural Information in Distributed Computing" at the University of Bordeaux, March 2019.

Laurent Viennot was referee and on the jury committee of the PhD thesis of Sébastien Ratel on "Densité, VC-dimension et étiquetages de graphes" at the University of Aix-Marseille, November 2019.

KOPERNIC Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Local Chair

The Kopernic team has hosted the 10th edition of the RTSOPS in July 2019.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

Liliana Cucu-Grosjean is the track chair of IEEE RTSS2019 and DATE2020 Track co-chair for real-time systems

9.1.2.2. Member of the Conference Program Committees

- Liliana Cucu: ACM RACS, RTNS, WFCS

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

All members of the team are regularly serving as reviewers for the main journals of our domain: Information Processing Letter, Journal of Heuristics, Journal of Real-Time Systems, Journal of Systems Architecture, Journal of Signal Processing Systems, Leibniz Transactions on Embedded Systems, IEEE Transactions on Industrial Informatics, etc.

9.1.4. Scientific Expertise

- Yves Sorel: Steering Committee of System Design and Development Tools Group of Systematic Paris-Region Cluster.
- Yves Sorel: Steering Committee of Technologies and Tools Program of SystemX Institute for Technological Research (IRT).

9.1.5. Research Administration

- Liliana Cucu-Grosjean is co-chair of Inria Committee on gender equality and equal opportunities
- Yves Sorel is chair of the CUMI Paris center commission
- Liliana Cucu-Grosjean was member of Inria Evaluation Commission until September 2019
- Liliana Cucu-Grosjean is member of Inria Scientific Board and CAP CRCN since September 2019
- Liliana Cucu-Grosjean is member of Paris CLHST
- Liliana Cucu-Grosjean is member of CES Paris commission
- Yves Sorel is member of the CDT Paris center commission

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: Yves Sorel, Optimization of distributed real-time embedded systems, 38H, M2, University of Paris Sud, France

Master: Yves Sorel, Safe design of reactive systems, 18H, M2, ESIEE Engineering School, Noisy-Le-Grand, France

Engineering school: Liliana Cucu-Grosjean, Graph theory, 30H, ESIEE, Cergy, France

Master: Liliana Cucu-Grosjean, Software Engineering, 30H, ESIEE, Noisy-le-Grand, France

Master: Adriana Gogonel, Machine learning, 30H, ESIEE, Noisy-le-Grand, France

9.2.2. Supervision

PhD in progress: Kevin Zagalo, Statistical predictability of cyber-physical systems, UMPC, started on October 2019, supervised by Liliana Cucu and Prof. Avner Bar-Hen (CNAM)

PhD in progress: Evariste Ntaryamira, Analysis of embedded systems with time and security constraints, UPMC, started on May 2017, supervised by Liliana Cucu and Cristian Maxim (IRT SystemX)

PhD in progress: Slim Ben-Amor, Schedulability analysis of probabilistic real-time tasks under end to end constraints, UPMC, started on November 2016, supervised by Liliana Cucu.

PhD in progress: Walid Talaboulma, Probabilistic timing analysis in presence of dependences, UPMC, started November 2015, co-supervised by Liliana Cucu and Adriana Gogonel (Statinf)

9.2.3. Juries

- Yves Sorel was a HDR jury member for the thesis of Luca Santinelli (ONERA), defended in May 2019.
- Liliana Cucu-Grosjean was a Phd reviewer for the thesis of Roberto Medina (Telecom Paristech), defended in January 2019.
- Liliana Cucu-grosjean was a PhD jury member of Francesco Pozo (Malardelan, Sweden), defended in October 2019.

9.3. Popularization

9.3.1. Articles and contents

- Interview with the Statinf co-founders, published on Inria web site (<https://www.inria.fr/centre/paris/actualites/statinf-sonde-les-caeurs-des-systemes-embarques>)

9.3.2. Education

- Presentation of Adriana Gogonel at a day organized by a Creteil and Versailles Academy for outreaching Computer Science (April 2019, Paris)

9.3.3. Interventions

- Participation of Adriana Gogonel at a round table entitled "May we innovate within a research institute?" (March 2019, Rocquencourt).

MAMBA Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- J. Clairambault has organised with Stylianos Xanthopoulos (University of the Aegean), Nikolaos Sfakianakis (University of St. Andrews), Nikos Kavallaris (University of Chester) and Pierre-Alexandre Bliman the Summer school and workshop *MBMC-Samos 2019* “Mathematical Biology on the Mediterranean Conference”, Samos island, Greece, September 1-14, see <http://actuarweb.aegean.gr/mbmc2019>. This conference, envisioned to be the first of a series of such MBMCs, consisted of two twin events, the Summer school and the workshop (1st and 2nd week) that were funded by Inria DGDS and DPEI, together with EMS and ESMTB.
- Dirk Drasdo is member of the Program committee of the SBMC 2020 (Heidelberg, Germany), May, 25-27.
- L. Almeida, B. Perthame and D. Peurichard coordinate a math-bio work group every month at LJLL
- D. Peurichard and D. Drasdo coordinate the internal 'Open MAMBA seminar' - seminar for PhD and post-doctoral students of the MAMBA team
- Pierre-Alexandre Bliman, together with Christian Schaerer (Polytechnic School, Universidad Nacional de Asunción, Paraguay), organized the Workshop on Advanced Control Techniques for Mosquito-Borne Diseases 2019 (WTAEM 2019) 11–17 november 2019, <https://sites.google.com/view/wtaem/wtaem>
- Benoit Perthame organized a France-China summer school 1-5 july 2019 (partnership LIA-SFMA, Institute of Natural Science and Department of mathematics, Shanghai Jiao Tong University)

9.1.1.2. Member of the Organizing Committees

- On October 7th and 8th, Marie Doumic co-organized the symposium *Deciphering the functional mechanisms of biological macromolecules* with Raphaël Guérois (CEA) and Marc Baaden (IBPC).
- Marie Doumic was a member of the organisation committee for the 50th anniversary of J-L. Lions laboratory (November 27-29).
- Marie Doumic co-organised the Workshop "Mathematical Models in Cancer", August 1-2, Vienna, Austria.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

- Pierre-Alexandre Bliman was in the Editorial Board of the conference “European Control Conference”, Naples (Italy), 25-28 June 2019.

9.1.2.2. Reviewer

- Pierre-Alexandre Bliman, reviewer for the conferences IEEE Conference on Decision Control, European Control Conference.
- Dirk Drasdo, CELLMECH 2019 (June 3-6, 2019): Quantitative single-cell-based modelling reveals predictable response of growing tumour spheroids on external mechanical stress, and how this informs liver regeneration

- Dirk Drasdo, 3rd Workshop on BioFabrication & Cancer, 24-25.09.2019: Quantitative single-cell-based modelling reveals predictable response of growing tumour spheroids on external mechanical stress, and how this informs liver regeneration

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Dirk Drasdo is associate editorial member of J. Theor. Biol. Royal Society Open Science, and The Scientific World Journal.
- Marie Doumic is associate editor of Kinetic and Related Models and of the Journal of Mathematical Biology.
- Diane Peurichard and Nastassia Pouradier Duteil are guest editors of a special issue for the journal Mathematical Biosciences and Engineering, planned in september 2020.
- Benoit Perthame is associate editor of Bol. SeMA, Milan Journal of Mathematics, M3AS, Mathematical Medicine and Biology (IMA journal), Comm. in PDE,

9.1.3.2. Reviewer - Reviewing Activities

We reviewed for:

BBA Reviews Cancer, Mathematical Modelling of Natural Phenomena, Mathematical Biosciences, Mathematical Biosciences and Engineering, Bioinformatics, BBA Molecular Cell Research, Computers in Biology and Medicine, Biosystems, J Math Biol, Cancer Research, Bull Math Biol, J Theor Biol, Science Advances ; Symmetry, Mathematical Biosciences and Engineering ;

IEEE Transactions on Automatic Control, Mathematical Biosciences;

Transactions of the London Mathematical Society, Journal of Mathematical Biology;

Annales de l'Institut Henri Lebesgue, SIAM Applied Math, J. Math. Biol, Asymptotic Analysis.

9.1.4. Invited Talks

- P.-A. Bliman's presentations at seminars and workshops:
 - Laboratoire Analyse, Géométrie et Applications UMR 7539, Université Paris 13, February 2019;
 - Institut de Mathématiques de Bordeaux UMR 5251, March 2019;
 - Universidad Nacional de Asunción, Asunción, Paraguay, March 2019 Université de Guyane, Cayenne, April 2019;
 - Universidade Federal de Amapá, Macapá, Brazil, April 2019;
 - Laboratoire Jacques-Louis Lions, Sorbonne Université, Paris, June 2019;
 - COPPE, Universidade Federal de Rio do Janeiro, Brazil, July 2019;
 - Fifth International Conference on Computational and Mathematical Population Dynamics, Fort Lauderdale (FL), USA May 2019;
 - Mathematical Biology on the Mediterranean Conference, Samos, September 2019;
 - Workshop on Advanced Control Techniques for Mosquito-Borne Diseases 2019, Asunción, Paraguay, November 2019.
- J. Clairambault's presentations at seminars and workshops:
 - Maths club Paris VII, January 2019;
 - LJLL 50-year anniversary, Roscoff March 2019;
 - Seminar Math-Bio, LAGA, Université Paris XIII, Villetaneuse, April 2019;
 - Mathematical Methods and Models in Biosciences Conference, IMPAN, Bedlewo, Poland, June 2019;

- Mathematical Biology on the Mediterranean Conference, Samos, Greece, September 2019;
- Symposium on Modelling approaches for cancer therapy, Cité scientifique, Lille, September 2019;
- Q-Bio symposium Pasteur Institute, December 2019.
- D. Peurichard’s presentations at seminars and workshops:
 - Colloque d’ouverture 50 ans du LJLL, Roscoff, March 2019;
 - ICIAM 9th International Congress on Industrial and Applied Mathematics, Valencia, July 15th-19th;
 - Math and cancer workshop in Vienna, 1-3th August, 2019;
 - MAMOVI days (MATHématiques de la MODélisation du VIVant), Tours, 4th-6th Sep, 2019;
 - Mathematical Biology on the Mediterranean Conference, Samos, Greece, September 2019;
 - PDE-biology workshop, Orsay, 25-26 Nov 2019;
 - Math-bio seminar, Bordeaux, December, 2019.
- N. Pouradier Duteil’s presentations at seminars and workshops:
 - Colloque d’ouverture 50 ans du LJLL, Roscoff, March 2019;
 - Journées Picard, Roscoff, March 2019;
 - Séminaire du laboratoire Jacques-Louis Lions, Paris, March 2019;
 - Workshop “PDEs and Applications in Life Sciences”, Penn State, USA, October 2019;
 - INdAM workshop "Recent advances in kinetic equations and applications", Rome, Italy, November 2019.
- M. Doumic’s presentations at seminars, workshops and conferences:
 - Inria-KAIST (Korean Advanced Institute of Science and Technology) meeting, Paris, March 28th.
 - Amiens PDE seminar, May 27th.
 - PDE Day, June 7th, Le Havre.
 - Four-hour course at the 2019 Summer School on Mathematical Biology, July 1-4, Shanghai.
 - Plenary talk at the AIP 2019 Conference (Applied Inverse Problems), July 7-11, Grenoble.
 - First meeting of MeDyNa GDR, October 7-10, Sainte Montaine.
 - DEA conference in Krakow, September 18-20.
 - CENTURI Conference in Marseille, November 18th, with W-F. Xue.

9.1.5. Leadership within the Scientific Community

Dirk Drasdo is member of the scientific leadership board of the German flagship project LiSyM (Liver Systems Medicine) financed by BMBF (Germany).

Marie Doumic is a member of the board of the GDR Medyna (self-assembly of peptides and proteins).

9.1.6. Scientific Expertise

M. Doumic is a member of ITMO BMSV (interdisciplinary institute for structural and biomolecular basis of living matter) experts’ committee, representing Inria.

M. Doumic is a member of the scientific committee of the mathematical institute INSMI of CNRS, and a member of the interdisciplinary committee CID 51 of CNRS.

9.1.7. Research Administration

- Dirk Drasdo is associated with IfADo Leibniz-Institute. He directs a research group bi-localized at Inria de Paris and IfADo, Dortmund.
- Dirk Drasdo is member of the scientific leadership board of the German flagship project LiSyM (Liver Systems Medicine) financed by BMBF (Germany).
- D. Peurichard is a member of the CSD (Comité de Suivi Doctoral) at Inria
- P.-A. Bliman is the coordinator of the ECOS-Nord project C17M01 “News methods for control of dengue and arboviroses”, and international coordinator of the STIC AmSud project 20-STIC-05 “New Methods for Biological Control of the Arboviruses” epidemics”.
- M. Doumic is a member of the organisation committee for mentorship at Inria Paris.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Most non permanent researchers have teaching activities in Sorbonne Université. We detail below only some of the teaching activities of permanent researchers.

- N. Pouradier Duteil, “Travaux de Recherche Encadrés”, 10h, M1, Jussieu
- D. Drasdo, “Agent-based models of tissue organization”, Paris 24 h / yr, M2 course, UPMC, Paris, France
- D. Drasdo: "Integrated and spatial-temporal multiscale modeling of liver guide in vivo experiments in healthy & chronic disease states: a blue print for systems medicine?", M2 course, 1 h, Ecole Polytechnique, France
- D. Peurichard, TD M1 in Jussieu, "Fondements des méthodes numériques", 40h
- D. Peurichard, M1 TD in Jussieu, "Approximation des EDP", 24h
- D. Peurichard, M2 4 hours course in Strasbourg in the interdisciplinary program entitled 'Physique Cellulaire'
- B. Perthame, M2 course “Introduction to mathematical biology”
- M. Doumic, M2 Course "Inverse Problems in Population Dynamics"

(24 hours)

9.2.2. Supervision

PhD in progress:

- P.-A. Bliman is co-advisor of the PhD student Pastor E. Pére-Estigarribia (with Ch. Schaerer, at UNA, Paraguay);
- L. Almeida is Emma Leschiera’s co-supervisor (with Chloé Audebert, Sorbonne Université, and Tommaso Lorenzi, St Andrew’s university) and Jesus Bellver Arnau’s supervisor;
- M. Doumic is Mathieu Mezache’s co-supervisor (with H. Rezaei, Inra - defended in December 2019), Cécile della Valle’s co-supervisor (with Philippe Moireau, Inria Saclay), Julia Delacour’s co-supervisor (with Christian Schmeiser, Vienna), Hugo Martin’s co-supervisor (with Pierre Gabriel, Université de Versailles-St Quentin - defended in July 2019), Adrien Ellis’ co-supervisor (with Marc Hoffmann, Université Paris Dauphine - begun in October 2019) and Anaïs Rat co-supervisor (with Magali Tournus, Centrale Marseille - begun in October 2019);
- B. Perthame is Alexandre Poulain’s supervisor, Giorgia Ciavovella’s co-supervisor (with Roberto Natalini, Roma), Federica Bubba’s co-supervisor (with Pasquale Ciarletta, Politecnico di Milano) and Noemi David’s co-supervisor (with, University of Bologna);
- Diane Peurichard is Valeria Caliaro’s supervisor;

- Philippe Robert is Gaëtan Vignoud's advisor.

M2 internship: P.-A. Bliman was Mahamadou Sylla's advisor; M. Doumic was Adrien Ellis' advisor; D. Peurichard was Valeria Caliaro's advisor; Luis Almeida is Jesus Bellver Arnau's supervisor and Jorge Hernandez co-supervisor.

9.2.3. Committees

- J. Clairambault's international project evaluation activity in 2019: ICREA, EPSRC
- J. Clairambault's PhD defence committees: Ghassen Haddad (JC supervisor), Paris March 1st; Mohammed Ladjimi, Lille, September 25.
- J. Clairambault is member of the ANR evaluation panel "Mathematics and their interactions for biology and health"
- M. Doumic is a member of the interdisciplinary committee 51 of CNRS (CID51): selection committee for junior and senior research scientists of CNRS.
- M. Doumic was a member of the Inria Paris research center selection committee for junior scientists.
- M. Doumic's Ph.D defence committees: Hugo Martin (MD supervisor), July Paris, Frédérique Robin (MD chair), September 26, Paris; Emma Horton (MD reviewer), November 14th, Bath; Mathieu Mezache (MD supervisor), December 17th, Paris; Samuel Nordmann, October 11th, Paris.
- D. Peurichard is a member of the Inria "Comission des emplois scientifiques" for selecting PhD, delegation and post-doctoral candidates at Inria.
- D. Peurichard is a member of the ARP/SRP selection committee for Inria.

9.3. Popularization

Diane Peurichard presented a talk in the framework of the "Remise des prix des Olympiades de mathématiques de Paris" (prize for national mathematics competition for young french students), Wednesday 29th, June 2019.

Diane Peurichard presented her work at the Inria scientific days in Lyon from June 5th- 7th, 2019.

At the occasion of scientific seminaries, Pierre-Alexandre Bliman gave interviews to TV channels in Paraguay: Paraguai TV (March 28, 2019); and in Brazil: Globo Amapá (April 16, 2019), Balanço Geral AP (April 17th, 2019).

Marie Doumic gave a presentation of her research for middle-school pupils in internship (December 2019) and for highschool mathematics teachers (March 2019, in Lille), and did "speed-dating interviews" with high school students (February 12th, NGO "Sephora Berrebi").

Benoit Perthame gave public talks at Tamkang university (Taipei) and Nancy.

MATHERIALS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

E. Cancès

- has been director (until August 2019) and is now co-director (starting September 2019) of CERMICS, the Applied Mathematics department at École des Ponts,
- is a member of the editorial boards of Mathematical Modelling and Numerical Analysis (2006-), SIAM Journal of Scientific Computing (2008-), SIAM Multiscale Modeling and Simulation (2012-), and the Journal of Computational Mathematics (2017-),
- has co-organized the 4th international conference on Mathematical and Numerical Analysis of Electronic Structure Models (Suzhou, China, June), an interdisciplinary summer school on Mathematical Methods for Molecular Simulation at Jussieu (Paris, June), a series of minisymposia at ICIAM 2019 (Valencia, Spain, July), and the FSMP Horizon Maths 2019 conference (Paris, December).

V. Ehrlacher

- is a member of the “Conseil d’Enseignement et de Recherche” of Ecole des Ponts,
- co-organizes the colloquium of the CERMICS lab,
- co-organized a minisymposium at the ICIAM conference in Valencia, July.

C. Le Bris is a managing editor of Networks and Heterogeneous Media. He is a member of the editorial boards of Annales mathématiques du Québec (2013-), Archive for Rational Mechanics and Analysis (2004-), Calcolo (2019-), COCV (Control, Optimization and Calculus of Variations) (2003-), Mathematics in Action (2008-), Nonlinearity (2005-), Journal de Mathématiques Pures et Appliquées (2009-), Pure and Applied Analysis (2018-). He is a member of the editorial boards of the monograph series Mathématiques & Applications, Series, Springer (2008-), Modelling, Simulations and Applications, Series, Springer (2009-), Springer Monographs in Mathematics, Springer (2016-). He is a member of

- the “Conseil de la Faculté des sciences et ingénierie”, Sorbonne Université,
- the “Conseil scientifique” of SMAI.

He is the president of the scientific advisory board of the Institut des Sciences du calcul et des données, Sorbonne Université. He holds a regular position of Visiting Professor at the University of Chicago.

T. Lelièvre

- is editor-in-chief of ESAIM: Proceedings and Surveys (with D. Chafai, C. Imbert and P. Lafitte),
- is a member of the editorial boards of IMA: Journal of Numerical Analysis, SIAM/ASA Journal of Uncertainty Quantification, Communications in Mathematical Sciences and Journal of Computational Physics,
- is a member of the “Conseil d’Administration” of SMAI and École des Ponts,
- has co-organized the CECAM workshop "Learning the collective variables of biomolecular processes" at Inria Paris July 10-12th 2019 (with L. Delemotte, J. Hénin and G. Stock),
- has co-organized the ICL/CNRS workshop on "Interacting Particle Systems and applications" at Imperial College of London, December 9-10th 2019 (with G. Pavliotis),
- holds a visiting professorship position at Imperial College of London (from August 2019).

F. Legoll

- is a member of the editorial board of SIAM MMS (2012-) and of ESAIM: Proceedings and Surveys (2012-),
- is a member of the ANR committee CES-40 "Mathématiques et informatique",
- has co-organized, with U. Hetmaniuk (U. of Washington, USA), the mini-symposium "Multiscale and domain decomposition approaches for PDEs with rough coefficients" within the SIAM CSE 2019 conference (Spokane, USA, February),
- has co-organized, with C. Le Bris, the mini-symposium "Computational approaches for multiscale, possibly random problems" within the ICIAM 2019 conference (Valencia, Spain, July).

A. Levitt co-organises the applied mathematics seminar of the CERMICS lab.

G. Robin

- co-organizes the working group "Machine learning and optimization" of the Labex Bezout (with G. Stoltz, as well as W. Hachel and R. Elie),
- is the president of the group "Jeunes de la Société Française de Statistique" (SFdS).

G. Stoltz

- is a member of the scientific council of UNIT (Université Numérique Ingénierie et Technologie),
- is a member of the "Conseil d'Enseignement et de Recherche" of Ecole des Ponts.

9.2. Teaching - Supervision - Juries

The members of the project-team have taught the following courses.

At École des Ponts 1st year (equivalent to L3):

- Analyse et calcul scientifique, 30h (V. Ehrlacher, O. Gorynina, R. Goudey, A. Lesage, S. Siraj-Dine, G. Stoltz),
- Équations aux dérivées partielles et éléments finis, 15h (F. Legoll, P.-L. Rothé),
- Hydraulique numérique, 15h (S. Boyaval),
- Mécanique quantique, 10h (E. Cancès, A. Levitt),
- Méthodes numériques pour les problèmes en grande dimension, 17h30 (V. Ehrlacher, S. Boyaval),
- Optimisation, 15h, L3 (G. Kemlin, A. Lesage), Outils mathématiques pour l'ingénieur, 15h (E. Cancès, G. Ferré, F. Legoll, T. Lelièvre, P.-L. Rothé),
- Projet de première année, 15h (G. Ferré).

At École des Ponts 2nd year (equivalent to M1):

- Analyse de Fourier, 15h (A. Levitt),
- Problèmes d'évolution, 36h (F. Legoll, V. Ehrlacher),
- Contrôle de systèmes dynamiques et équations aux dérivées partielles, 18h (E. Cancès),
- Projet du département IMI, 12h (G. Ferré, M. Ramil, J. Roussel, L. Silva Lopes),
- Projets Modéliser Programmer Simuler (V. Ehrlacher, G. Robin),
- Statistics and data sciences, 24h (G. Stoltz),
- Techniques de développement logiciel, 18h (M. Herbst).

At École des Ponts 3rd year (equivalent to M2):

- Méthodes de quantification des incertitudes en ingénierie, 18h (V. Ehrlacher),
- Remise à niveau: outils mathématiques, 9h (A. Lesage).

At the M2 “Mathématiques de la modélisation” of Sorbonne Université:

- Introduction à la physique statistique computationnelle, 20h (G. Stoltz),
- Méthodes numériques probabilistes, 24h (T. Lelièvre),
- Problèmes multiéchelles, aspects théoriques et numériques, 24h (F. Legoll),
- Théorie spectrale et variationnelle, 10h (E. Cancès).

At other institutions:

- Homogenization theory and multiscale problems, 21h, University of Chicago (C. Le Bris).
- Maths 2, 3h, L3, École des Mines (G. Stoltz),
- Probabilités de 1ère année, 27h, L3, Ecole des Mines (M. Ramil),
- Supervision of M2 projects, Master Mathématiques pour les sciences du vivant (MathSV) Université Paris-Saclay (G. Robin).

The following PhD theses supervised by members of the project-team have been defended:

- Ling-Ling Cao, Mathematical analysis of models of electronic structure for defected materials, Université Paris-Est, École des Ponts, defended on October 29th, 2019, supervised by E. Cancès and G. Stoltz,
- Grégoire Ferré, Large deviations theory in statistical physics: some theoretical and numerical aspects, Université Paris-Est, École des Ponts, defended on November 27th, 2019, supervised by G. Stoltz,
- Pierre-Loik Rothé, Numerical methods for the estimation of fluctuations in multi-scale materials and related problems, Université Paris-Est, École des Ponts, defended on December 12th, 2019, supervised by F. Legoll,
- Laura Silva Lopes, Rare event simulation and applications to biological systems, Université Paris-Est, Ecole des Ponts, defended on December 19th, 2019, supervised by J. Hénin (IBPC) and T. Lelièvre.

The following PhD theses supervised by members of the project-team are ongoing:

- Zineb Belkacemi, thèse CIFRE SANOFI, Machine learning for reaction coordinates in molecular dynamics, Université Paris-Est, since November 2018, supervised by T. Lelièvre and G. Stoltz,
- Robert Benda, Multiscale modeling of functionalized nanotube networks for sensor applications, École Polytechnique, started September 1st, 2018, supervised by E. Cancès and B. Lebental (École Polytechnique),
- Raed Blel, Monte Carlo methods and model reduction, started October 1st, 2018, supervised by V. Ehrlacher and T. Lelièvre,
- Rafaël Coyaud, Méthodes déterministes et stochastiques pour le transport optimal, Université Paris-Est, École des Ponts, started october 2017, supervised by A. Alfonsi (CERMICS), co-supervised by V. Ehrlacher,
- Qiming Du, Mathematical analysis of splitting methods, Ecole Doctorale Sciences Mathématiques de Paris Centre, started September 1st, 2016, supervised by A. Guyader (UPMC) and T. Lelièvre,
- Rémi Goudey, Problèmes d’homogénéisation en présence de défauts, Université Paris-Est, started in September 2019, supervised by C. Le Bris.
- Gaspard Kemlin, Mathematical and numerical analysis for electronic structures, École des Ponts, started September 1st, 2019, supervised by E. Cancès and co-supervised by A. Levitt.
- Adrien Lesage, Multi-scale methods for calculation and optimization of thin structures, started October 1st, 2017, supervised by F. Legoll, co-supervised by V. Ehrlacher and A. Lebée (Ecole des Ponts),
- Mouad Ramil, Metastability for interacting particle systems, started October 1st 2017, supervised by T. Lelièvre and J. Reygner (CERMICS),

- Lise Maurin, Non reversible and adaptive biasing processes for sampling, started 1st October 2018, supervised by T. Lelièvre and J.-P. Piquemal (Sorbonne Université), together with P. Monmarché (Sorbonne Université),
- Idrissa Niakh, Réduction de modèles pour les inégalités variationnelles, Université Paris-Est, École des Ponts, thèse CIFRE EDF, started november 2019, supervised by A. Ern (CERMICS), co-supervised by V. Ehrlacher,
- Inass Sekkat, Large scale Bayesian inference, Université Paris-Est, since March 2018, supervised by G. Stoltz,
- Sami Siraj-Dine, Modélisation mathématique des matériaux 2D, École des Ponts, started October 1st, 2017, supervised by E. Cancès, C. Fermanian and co-supervised by A. Levitt.

Project-team members have participated in the following PhD juries:

- S. Boyaval, PhD of Olivier Ozenda (“Continuous modelisation of suspension rheology and migration processes”), defended at Université Grenoble Alpes in Mars 2019,
- S. Boyaval, PhD of Sofiane Martel (“Numerical and theoretical analysis of invariant measures of scalar stochastic viscous conservation laws”), defended at Ecole des Ponts in December 2019,
- E. Cancès, PhD of Amaury Hayat (“Stabilisation de systèmes hyperboliques non-linéaires en dimension un d’espace”), defended at Sorbonne University in May 2019,
- V. Ehrlacher, PhD of Nadia Jbili (“Design and analysis of optimization schemes for nuclear magnetic resonance”), defended at Université Paris-Dauphine in December 2019,
- V. Ehrlacher, PhD of Charles Paillet (“Nouvelles démarches de réduction de modèles pour le traitement des problèmes à très grand nombre de paramètres”), defended at Ecole Normale Supérieure Paris-Saclay in June 2019,
- F. Legoll, referee for the PhD of Qingqing Feng (“Développement d’une méthode d’éléments finis multi-échelles pour les écoulements incompressibles dans un milieu hétérogène”), defended at École Polytechnique in September 2019,
- T. Lelièvre, referee for the PhD of Augustin Chevallier (“Random walks for estimating densities of states and the volume of convex bodies in high dimensional spaces”), defended at Université Côte d’Azur in April 2019,
- T. Lelièvre, referee for the PhD of Oleg Balabanov (“Randomized linear algebra for model order reduction”), defended at Université Bretagne Loire in October 2019,
- T. Lelièvre, referee for the PhD of Lara Neureither (“Irreversible multi-scale diffusions: time scales and model reduction”), defended at Brandenburgische Technische Universität in November 2019,
- G. Stoltz, referee for the PhD of Nicolas Brosse (“Around the Langevin algorithm in high dimension: extensions and applications”), defended at Ecole polytechnique in June 2019,
- G. Stoltz, PhD thesis of Laurent Laffèche (“Large particle dynamical systems”), defended at Université Paris-Dauphine Université Paris-Dauphine in June 2019,
- G. Stoltz, referee for the PhD of Nada Cvtekovic (“Convergent discretization schemes for transition path theory for diffusion processes”), defended at FU Berlin in Fall 2019,
- G. Stoltz, referee for the PhD of Nadia Jbili (“Design and analysis of optimization schemes for nuclear magnetic resonance”), defended at Université Paris-Dauphine in December 2019.

Project-team members have participated in the following habilitation juries:

- S. Boyaval, HdR of Sophie Ricci (“Uncertainties quantification and reduction in the computational geosciences – Application to free-surface hydraulics”), defended at CERFACS in April 2019,
- T. Lelièvre, president of the HDR jury of Denis Villemonais (“Exponential convergence to quasistationary distributions and applications”), defended at Université de Lorraine in November 2019.

9.3. Conference participation

Members of the project-team have delivered lectures in the following seminars, workshops and conferences:

- R. Benda, Informal Scientific Discussion (ISD) seminar of LSI laboratory, Ecole Polytechnique, Palaiseau, March,
- S. Boyaval, ICIAM minisymposia, Valencia (Spain), July,
- S. Boyaval, Workshop in computational hydraulics at UM6P, Ben Guerir (Morocco), September,
- S. Boyaval, 19th day of scientific computing and mathematical modelling in Amiens (France), June,
- E. Cancès University of Strasbourg, colloquium of the mathematics department, January,
- E. Cancès, WONAPDE, Concepcion, Chile, January (plenary lecture),
- E. Cancès, BIRS workshop, Banff, Canada, January,
- E. Cancès, Sorbonne Université, EMC2 seminar, Paris, February,
- E. Cancès, University of Chicago, Computational and applied mathematics seminar, USA, March,
- E. Cancès, ICMS workshop, Edinburgh, United Kingdom, March,
- E. Cancès, Fields Institute workshop, Toronto, Canada, April,
- E. Cancès, CECAM workshop, Lausanne, Switzerland, May,
- E. Cancès, AMMCS, Waterloo, Canada, August (plenary lecture),
- E. Cancès, IMS workshop, Singapore, September,
- E. Cancès, Sorbonne University, ERC EMC2 kick-off meeting, October,
- E. Cancès, Campus des Cordeliers, laboratoire J.-L. Lions 50th anniversary, Paris, November,
- V. Ehrlacher, GAMM meeting (keynote lecture), Vienna, February,
- V. Ehrlacher, Inria-LJLL seminar, Paris, April,
- V. Ehrlacher, Laboratoire Paul Painlevé seminar, Lille, April,
- V. Ehrlacher, Workshop Cambridge-MMCD, Marne-la-Vallée, April,
- V. Ehrlacher, workshop on “Optimal Transport: from Geometry to Numerics“, Erwin Schrödinger Institut, Vienna, April,
- V. Ehrlacher, workshop on “Scientific Computing Across Scales: Quantum Systems in Cold-matter Physics and Chemistry“, Fields Institut, Toronto, April,
- V. Ehrlacher, ICIAM, Valencia, July,
- V. Ehrlacher, MFO workshop: “Computational Multiscale Methods“, Oberwolfach, August,
- V. Ehrlacher, MORTECH, Paris, November,
- G. Ferré, Young researchers’ seminar, Université Paris-Dauphine, France, February,
- G. Ferré, Probability seminar at Lille University, France, March,
- G. Ferré, Probability seminar at Marseille University, France, May,
- G. Ferré, Congrès SMAI 2019, Lorient, France, May,
- G. Ferré, Journées de Probabilités, Dourdan, France, June,
- G. Ferré, ICIAM 2019, Valencia, Spain, July,
- G. Ferré, SciCADE 2019, Innsbruck, Austria, July,
- G. Ferré, GAMM MoAnSi 2019 meeting, Munich, Germany, September,
- G. Ferré, Probability seminar, University Saint-Quentin en Yvelines, France, November,
- O. Gorynina, Congrès SMAI, Guidel, France, May,
- O. Gorynina, ICIAM 2019 conference, Valencia, Spain, July,
- O. Gorynina, Applied Mathematics Seminar, Surgut State University, Russia, December,

- M. Herbst, Université de Lorraine Laboratoire de Physique et Chimie Théoriques seminar, Metz, May,
- M. Herbst, Université de Lille, Laboratoire de Physique des Lasers, Atomes et Molécules seminar, Lille, May,
- M. Herbst, Technische Universität München, seminar Domcke group, München, September,
- M. Herbst, GAMM moansi annual meeting, München, September,
- M. Herbst, Université Paul Sabatier Toulouse, Laboratoire de Chimie et Physique Quantiques seminar, Toulouse, November,
- G. Kemlin, GAMM - MOANSI meeting, München, Germany, September
- C. Le Bris, ICIAM 2019 Invited speaker, July 2019, Valencia, Spain,
- F. Legoll, University of Chicago, CAMP seminar, Chicago, USA, February,
- F. Legoll, SIAM CSE 2019 conference, Spokane, USA, February,
- F. Legoll, Séminaire "Probabilités, Statistiques, Contrôle", ENSTA, Palaiseau, March,
- F. Legoll, CECAM workshop on "Big data and Uncertainty Quantification", Lausanne, Switzerland, March,
- F. Legoll, Colloque national en calcul des structures 2019, Giens, May,
- F. Legoll, ADMOS 2019 conference, Alicante, Spain, May,
- F. Legoll, Coupled problems 2019 conference, Barcelona, Spain, June,
- F. Legoll, MAFELAP (Mathematics of Finite Elements and Applications) 2019 conference, London, United Kingdom, June,
- F. Legoll, Séminaire du Laboratoire de Mécanique et d'Acoustique, Marseille, June,
- F. Legoll, ICIAM 2019 conference, Valencia, Spain, July,
- F. Legoll, Complas 2019 conference, Barcelona, Spain, September,
- F. Legoll, Workshop on "New trends in asymptotic methods for multiscale PDEs", Karlstad, Sweden, October,
- F. Legoll, MORTech 2019 workshop, Paris, November,
- T. Lelièvre, LIA CNRS - UIUC Meeting, Hauteluce, January,
- T. Lelièvre, Séminaire LPCT, Nancy, February,
- T. Lelièvre, Computational and Applied Mathematics / PDE seminar, University of Chicago, February,
- T. Lelièvre, CECAM Workshop, CIB-EPFL, Lausanne, Switzerland, March,
- T. Lelièvre, CECAM Workshop, CIB-EPFL, Lausanne, Switzerland, May,
- T. Lelièvre, CNLS Seminar, Los Alamos National Laboratory, USA, June,
- T. Lelièvre, IPAM, Lake Arrowhead, USA, June,
- T. Lelièvre, CECAM Workshop, Paris, July,
- T. Lelièvre, ICIAM, Valencia, Spain, July,
- T. Lelièvre, HetSys launch event, Warwick, England, September,
- T. Lelièvre, Numerical analysis in Bielefeld, Germany, September,
- T. Lelièvre, ANR QuAMProcs, Bordeaux, November,
- T. Lelièvre, AMMP Colloquium, Imperial College London, November,
- T. Lelièvre, "Fluids and Materials" seminar, Bristol, England, November,
- T. Lelièvre, Newton Institute, Cambridge, England, November,
- T. Lelièvre, Materials Research Society Fall Meeting, Boston, USA, December,

- A. Lesage, Congrès SMAI, Guidel, France, May,
- A. Lesage, ICIAM 2019 conference, Valencia, Spain, July,
- A. Levitt, BIRS workshop, Banff, Canada, January,
- A. Levitt, mathematical physics seminar, Copenhagen, February
- A. Levitt, Workshop Cambridge-MMCD, Marne-la-Vallée, April,
- A. Levitt, Congrès SMAI, Guidel, France, May,
- A. Levitt, Precision quantification in density functional theory, Louvain, Belgique, May,
- A. Levitt, Numerical Analysis of Electronic Structure Models, Suzhou, China, June,
- A. Levitt, ICIAM 2019 conference, Valencia, Spain, July,
- A. Levitt, GAMM - MOANSI meeting, München, Germany, September ,
- A. Levitt, weekly seminar, Aachen, Germany, October,
- A. Levitt, lunchtime seminar, Warwick UK, November,
- A. Levitt, Julia Meetup, Paris, December,
- G. Robin, seminar IACM, FORTH, Heraklion, October,
- G. Robin, seminar "Systèmes Complexes", CAMS, EHESS, November,
- P.-L. Rothé, Arbeitsgemeinschaft Applied Analysis, Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany, April,
- P.-L. Rothé, Groupe de travail des thésards du Laboratoire Jacques-Louis Lions, Paris, May,
- P.-L. Rothé, Congrès SMAI, Guidel, France, May,
- P.-L. Rothé, ADMOS 2019 conference, Alicante, Spain, May,
- P.-L. Rothé, ICIAM 2019 conference, Valencia, Spain, July,
- P.-L. Rothé, Journée "Approches probabilistes en mécanique" de la Fédération Francilienne de Mécanique (F2M), Paris, November,
- L. Silva Lopes, LIA CNRS - UIUC annual Meeting, Hauteluce, France, January,
- L. Silva Lopes, Lorentz Workshop, Leiden, Netherlands, March,
- L. Silva Lopes, IPAM, Lakearrowhead, USA, June,
- L. Silva Lopes, ICIAM, Valencia, Spain, July,
- L. Silva Lopes, MOANSI annual meeting, Munich, Germany, October,
- G. Stoltz, Mathematical Physics Seminar, Institut Henri Poincaré, March,
- G. Stoltz, CECAM workshop "Microscopic simulations: forecasting the next two decades", Toulouse, France, April,
- G. Stoltz, Workshop Cambridge/Labex MMCD, Champs-sur-Marne, France, April,
- G. Stoltz, CIB workshop "Computational mathematics for model reduction and predictive modelling in molecular and complex systems", Lausanne, Switzerland, May,
- G. Stoltz, MAP5 Colloquium, Université Paris Descartes, June,
- G. Stoltz, Rencontres prospectives RFCT, Nantes, France, June,
- G. Stoltz, Maths/chemistry seminar EMC2, Sorbonne-Université, June,
- G. Stoltz, DEFI/MEDISIM/POEMS seminar, Inria Saclay, July,
- G. Stoltz, ICIAM 2019, Valencia, Spain, July,
- G. Stoltz, SciCADE 2019, Innsbruck, Austria, July,
- G. Stoltz, seminar CEREMADE, Université Paris-Dauphine, October,
- G. Stoltz, Applied PDEs seminar, Imperial College London, October,
- G. Stoltz, QuAMProcs meeting, Bordeaux, France, November.

Members of the project-team have delivered the following series of lectures:

- M. Herbst, Introduction to the Julia programming language, 6h, Julia Day, Paris, December,
- A. Levitt, Complex analysis and applications in quantum physics and chemistry, 9h, GDR CORREL spring school, Paris, April,
- G. Stoltz, Sampling high-dimensional probability distributions and Bayesian learning, 6h, doctoral school UM6P, Morocco, November,

Members of the project-team have presented posters in the following seminars, workshops and international conferences:

- R. Benda, Ab Init School, CEA Bruyères-Le-Châtel (DAM), January.
- R. Benda, Journées Théorie, Modélisation et Simulations (JTMS) , Institut de Biologie Physico-chimique (IBPC), Paris, June.
- R. Benda, PhD day LPICM, Ecole Polytechnique, Palaiseau, April.
- R. Benda, LPICM Congress, Cap Ferret, October.
- R. Benda, GDR Graphene, Graphene & Co Meeting 2019, Bad Herrenalb, Germany, October.
- M. Herbst, 9th Molecular Quantum Mechanics Conference, Heidelberg, Germany, July,
- G. Ferré, CIB-CECAM meeting, Lausanne, Switzerland, May
- A. Lesage, Workshop “New trends and challenges in the mathematics of optimal design”, Cambridge, United Kingdom, June,
- G. Robin, doctoral school UM6P, Morocco, November,
- L. Silva Lopes, GRC Liquids in Complex Environments, Driving Reactions, Assembling and Pushed to Their Limits, Holderness, USA, August,

Members of the team have benefited from long-term stays in institutions abroad:

- T. Lelièvre, University of Chicago, USA, February 2019 (three weeks),

Members of the project-team have participated (without giving talks nor presenting posters) in the following seminars, workshops and international conferences:

- R. Benda, Mini-school on mathematics for theoretical chemistry and physics, Paris, June,
- O. Gorynina, Oberwolfach summer school "Beyond Numerical Homogenization", Oberwolfach, Germany, June,
- M. Herbst, Mini-school on mathematics for theoretical chemistry and physics, Paris, June
- M. Herbst, Kick-off meeting extreme-scale mathematically-based computational chemistry, Paris, October,
- G. Kemlin, Mini-school on mathematics for theoretical chemistry and physics, Paris, June,
- G. Kemlin, Une giornata con Alessio - Quelques mathématiques autour d’Alessio Figali, Saclay, July,
- G. Kemlin, Kick-off meeting of the ERC project EMC2, Paris, October,
- G. Kemlin, Laboratoire J.-L. Lions 50th anniversary, Paris, November,
- G. Kemlin, Horizon Maths 2019 - Mathématiques et Chimie, Paris, December
- M. Ramil, ANR QuAMProcs, Bordeaux, November 2019,
- P.-L. Rothé, Workshop "Industrial problems solving", Montréal, Canada, August,
- L. Silva Lopes, CECAM Workshop, Paris, France July 2019,
- S. Siraj-Dine, Quantum Transport and Universality, Accademia Nazionale dei Lincei, September,

9.4. Popularization

9.4.1. Internal or external Inria responsibilities

- A. Levitt is a member of the editorial board of Interstices, Inria's popularization website,
- C. Le Bris has presented the project-team at "Mon équipe en 180 secondes", on November 7, 2019.

9.4.2. Articles and contents

- V. Ehrlacher has been interviewed for the online magazine "DigiSchool"
- G. Robin has been interviewed for the online magazine "Usbek et Rica" following her "L'Oréal-UNESCO For Women in Science" prize

9.4.3. Internal actions

- C. Le Bris has organized a research day for the students at École des Ponts on November 6, 2019.
- V. Ehrlacher has participated to a meeting "Mathématiques, nom féminin?" organized at Ecole des Ponts with pupils from middle school.

MATHRISK Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- A. Alfonsi
Co-organizer of the working group seminar of MathRisk “Méthodes stochastiques et finance”. <http://cermics.enpc.fr/~alfonsi/GTMSF.html>
- V. Bally
Organizer of the seminar of the LAMA laboratory of Université Paris-Est.
- A. Sulem
Co-organizer of the seminar Inria-MathRisk /Université Paris Diderot LPSM “Numerical probability and mathematical finance”. <https://www.lpsm.paris/mathfipronum/gt>

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- B. Jourdain
Associate editor of:
 - ESAIM : Proceedings and Surveys
 - Stochastic Processes and their Applications (SPA)
- D. Lamberton
Associate editor of:
 - Mathematical Finance,
 - Associate editor of ESAIM Probability & Statistics
- A. Sulem
Associate editor of:
 - Journal of Mathematical Analysis and Applications (JMAA)
 - International Journal of Stochastic Analysis (IJSA)
 - SIAM Journal on Financial Mathematics (SIFIN)

10.1.2.2. Reviewer - Reviewing Activities

- B. Jourdain: Reviewer for *Mathematical Reviews*
- A. Sulem: Reviewer for *Mathematical Reviews*

10.1.3. Invited Talks

- Aurélien Alfonsi
 - 4th of April, 2019: "Lifted and Geometric Differentiability of the Squared Quadratic Wasserstein Distance", Séminaire MAD-Stat, Toulouse School of Economics.
 - 16th of May, 2019: "Approximation of OT problems with marginal moments constraints", Séminaire de probabilités et mathématiques financières, Evry.

- 20th of June, 2019: "A generic construction for high order approximation schemes of semigroups using random grids", Mathematical and Computational Finance Seminar, Oxford.
- 27th of September, 2019: "A generic construction for high order approximation schemes of semigroups using random grids", Séminaire Bachelier.
- 24th of October, 2019: "A generic construction for high order approximation schemes of semigroups using random grids", GT Finance mathématique, probabilités numériques et statistique des processus, LPSM.
- Vlad Bally
 - The 22nd Conference of the Romanian Society of Probability and Statistics, Bucharest, May 10-11, Talk "Convergence in the CLT in distribution norms"
 - Analyse stochastique et thèmes connexes. 6-9 mai 2019, Bucarest, Roumanie. Talk "Regularity and estimates for the function solution of the 2D Boltzmann equation"
 - Perturbation Techniques in Stochastic Analysis and its Applications. Luminy 11-15 March. Talk "Regularity and estimates for the function solution of the 2D Boltzmann equation"
 - Conference Unirandom on random nodal sets, Rennes 9-13 September.
 - Conference on asymptotic expansions and Malliavin calculus. Talk: "Regularization lemmas and convergence in total variation".
- Benjamin Jourdain
 - Vienna Seminar in Mathematical Finance and Probability, 10 October 2019 : Differentiability of the squared quadratic Wasserstein distance
 - Inria-CWI workshop, Amsterdam, 17-18 September 2019 : Sampling of probability measures in the convex order and computation of robust option price bounds
 - MCMC 2019, Sydney, 8-12 July 2019 : Weak error analysis for some mean-field SDEs
 - Nine talks on contemporary optimal transport problems, Strasbourg, 4-5 July 2019: The inverse transform martingale coupling
 - 9th general AMAMEF conference, Paris, 11-14 June 2019 : The inverse transform martingale coupling
 - Nancy probability and statistics seminar, 9 May 2019 : A new family of martingale couplings in dimension one
 - Conference Perturbation Techniques in Stochastic Analysis and its Applications, Marseille 11-15 March 2019 : 3h lectures entitled Stochastic Differential Equations with mean-field rank-based coefficients
- Agnès Sulem
 - Conference on Stochastic Analysis and Applications Risør, Norway, August 26-30 2019. *Nonlinear pricing in incomplete markets with default.*
 - Complex Networks 2019, December 10-12, 2019, Lisbon. (Conference with referee process), *A Dynamic Contagion Risk Model With Recovery Features.*

10.1.4. Research Administration

- A. Alfonsi
 - Deputy director of CERMICS laboratory until August,
 - Director of the CERMICS since September.
 - In charge of the Master "Finance and Data" at the Ecole des Ponts.
- V. Bally
 - Member of the LAMA committee

- Responsible of the Master 2, option finance.
- Benjamin Jourdain
 - Head of the doctoral school MSTIC, University Paris-Est until February 2019
- D. Lamberton
 - Vice-president for research at Université Paris-Est Marne-la-Vallée
- A. Sulem
 - Member of the Scientific Committee of AMIES
 - Corresponding member of the Operational Committee for the assesment of Legal and Ethical risks (COERLE) at Inria Paris research center
 - Member of the Committee for Inria international Chairs

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence :

- A. Alfonsi: "Probabilités", first year course at Ecole des Ponts.
- V. Bally : "Analyse Hilbertienne", Course L3, UPEMLV

Master :

- Aurélien Alfonsi
 - "Données Haute Fréquence en finance", lecture for the Master at UPEMLV.
 - "Mesures de risque", Master course of UPEMLV and Sorbonne Université.
 - Professeur chargé de cours at Ecole Polytechnique.
- Vlad Bally
 - "Taux d'Intêret", M2 Finance.
 - "Calcul de Malliavin et applications en finance", M2 Finance
 - "Analyse du risque" M2 Actuariat,
 - "Processus Stochastiques" M2 Recherche
- Benjamin Jourdain
 - course "Mathematical finance", 2nd year ENPC
 - course "Monte-Carlo Markov chain methods and particle algorithms", Research Master Probabilités et Modèles Aléatoires, Sorbonne Université
- B. Jourdain, B. Lapeyre
 - course "Monte-Carlo methods", 3rd year ENPC and Research Master Mathématiques et Application, university of Marne-la-Vallée
- J.-F. Delmas, B. Jourdain
 - course "Jump processes with applications to energy markets", 3rd year ENPC and Research Master Mathématiques et Application, University of Marne-la-Vallée
- D. Lamberton
 - "Calcul stochastique pour la finance", master 1 course, Université Paris-Est Marne-la-Vallée
- B. Lapeyre
 - Monte-Carlo methods in quantitative finance, Master of Mathematics, University of Luxembourg,

- A. Sulem

- "PDE methods in Finance", Master of Mathematics, University of Luxembourg, 22 h lectures and responsible of the module "Numerical Methods in Finance".

10.2.2. Supervision

- PhD: Rui Chen, "Dynamic Optimal Control for Distress in Large Financial Networks and Mean field Systems with Jumps", Université Paris-Dauphine, defended on July 19th 2019, Supervisor: Agnès Sulem [10].
- PhD in progress :
 - Anas Bentaleb (started February 2018) : Mathematical techniques for expected exposure evaluation, Supervisor: B. Lapeyre.
 - Adel Cherchali, "Numerical methods for the ALM", funded by Fondation AXA, started in September 2017, Supervisor: Aurélien Alfonsi
 - Rafaël Coyaud, "Deterministic and stochastic numerical methods for multimarginal and martingale constraint optimal transport problems", started in October 2017, Supervisor: Aurélien Alfonsi
 - Oumaima Bencheikh (started November 2017) "Acceleration of probabilistic particle methods", supervised by B. Jourdain
 - Ezechiél Kahn (started September 2018) "Functional inequalities for random matrices models", supervised by B. Jourdain and D. Chafai
 - Sophian Mehalla (started November 2017), CIFRE agreement Milliman company/Ecole des Ponts (<http://fr.milliman.com>), Supervisor: B. Lapeyre
 - William Margheriti (started January 2018) "Numerical methods for martingale optimal transport problems", supervised by J.-F. Delmas and B. Jourdain

10.2.3. Juries

- Aurélien Alfonsi:
 - Report and jury of the PhD thesis of Rui Chen, July 19, Paris Dauphine.
 - Report and jury of the PhD thesis of Babacar Diallo, December 9, Evry University.
- Benjamin Jourdain:
 - Report and jury of the PhD of Yating Liu, defended on December 3, Sorbonne University
 - PhD of Victor Marx, defended on October 25, University Nice Côte d'Azur
 - PhD of Nicolas Thomas, defended on June 20, Sorbonne University
- Agnès Sulem:
 - Report and jury of the HdR thesis "*Gestion optimale de Portefeuille: Du contrôle Sensible au Risque, à la Finance Comportementale et à la Science des Données*" Sebastien Lleo, CNAM, Paris, 4 February 2019
 - PhD of Cyril Benezet, defended on 5 November 2019, LPSM, Université Paris-Diderot, (Chair of the Committee)
 - Member of the Committee for the recruitment of a Professor in applied mathematics, finance and numerical probability, Laboratoire de probabilités (LPSM), Université Paris-Diderot, Spring 2019.

MIMOVE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- R. Teixeira, member of the selection committee of the Heidelberg Laureate Forum 2019–2021.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- V. Issarny, TPC co-chair of: The International Conference on the IoT (ICIOT) at SCF'19 (June 2019, San Diego, CA, USA); and The 5th 2CM/IEEE Conference on Internet of Things Design & Implementation (IoTDI) at CPS-IoT week (April 2020, Sydney, Australia).

10.1.2.2. Member of the Conference Program Committees

- V. Issarny, member of the TPC of the following international conferences: IEEE CIC'19, ACM EUROSYS'20 (Heavy PC), ACM ESEC/FSE'19, IEEE ICDCS'20, ICSE'20, ICSE-SEIS'19 & 20, ACM/IEEE IoTDI'19, and ACM/IFIP Middleware'19.
- R. Teixeira, member of the TPC of: USENIX Symposium on Networked Systems Design and Implementation (NSDI) 2020, Passive and Active Measurement Conference (PAM) 2020, and the Buffer Sizing Workshop 2019.
- N. Georgantas, member of the TPC of the following international conferences: SAC'19&'20, SOSE'19&'20, The Web Conference'19&'20.
- N. Georgantas, member of the TPC of the following international workshops: MRT'19, IoT-ASAP'19, ARM'19, ASYDE'19.
- V. Christophides, member of the TPC of the EDBT/ICDT 2020 Joint Conference, IEEE ICDE 2020, and the 28th ACM International Conference on Information and Knowledge Management (CIKM).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- V. Issarny, member of the following editorial boards: The ACM Transaction on Autonomous and Adaptive Systems (TAAS), The ACM Transactions on the Internet of Things (TIOT), The IEEE Transactions on Services Computing (TSC), and The IEEE Transactions on Software Engineering (TSE).
- N. Georgantas, Associate editor, International Journal of Ambient Computing and Intelligence (IJACI).
- V. Christophides, Associate editor, MDPI Open Access Journal of Internet of Things (IoT) and MDPI Open Access Journal of Future Internet.

10.1.4. Invited Talks

- R. Teixeira “Passive Measurements of Residential Internet Performance”, Google Networking Summit, 2019.
- R. Teixeira, “Lightweight, General Inference of Streaming Video Quality from Encrypted Traffic”, Workshop em ciencia de dados LNCC, Brazil, 2019.
- N. Georgantas, “Enabling Emergent Mobile IoT Systems: Middleware Interoperability & QoS Analysis”, Eclipse IoT Day Paris Saclay 2019.

- V. Christophides, “Detecting Outliers in IoT Data Streams”, IRT SystemX, 2019.

10.1.5. Leadership within the Scientific Community

- V. Christophides, Member of the Executive Board of the EDBT Association.

10.1.6. Scientific Expertise

- V. Issarny, member of: the FWP expert panel for PhD fellowships on strategic basic research, and the expert panel of the 2019 FET open call.
- V. Issarny, member of: the ARCEP Scientific Council (appointed), and The ACM Europe Council (Elected).
- N. Georgantas, member of: the EDITE Doctoral School selection committee for PhD fellowships, 2018 & 2019 .

10.2. Teaching - Supervision - Juries

10.2.1. Supervision

PhD: Sara el Aouad, “Personalized, Aspect-based Summarization of Movie Reviews”, Sorbonne Université, April 26, 2019, R. Teixeira, V. Christophides, C. Diot.

PhDs in progress:

- Yifan Du (Since October 2017): "In-network collaborative crowd-Xing", Sorbonne University, V. Issarny and F. Sailhan (CNAM)
- Grigoris Piperagkas (Since October 2018): "Leveraging universal social networking and the IoT for urban-scale participatory systems", Sorbonne University, V. Issarny and R. Angarita (ISEP).
- William Aboucaya (Since October 2019): "Version control for urban participatory systems", Sorbonne University, V. Issarny and R. Angarita (ISEP).
- Dimitris Tsolovos (Since March 2017): "A privacy-by-design middleware for urban-scale mobile crowdsensing", UVSQ, N. Ancaux (Inria PETRUS @ Saclay) and V. Issarny.
- Patient Ntumba (Since August 2018): “Dynamic management of IoT data stream analytics in the edge-fog-cloud continuum”, Sorbonne University, N. Georgantas and Vassilis Christophides.

10.2.2. Juries

- V. Issarny, member of the following juries: Christian Cabrera (11/19, PhD, Trinity College Dublin, Ireland), Gilles Tredan (06/19, HDR, University of Toulouse), and Nic Volanschi (11/19, HDR, University of Bordeaux).

MOKAPLAN Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events: Organisation

7.1.1.1. General Chair, Scientific Chair

- School, A Numerical introduction to optimal transport <https://team.inria.fr/ecoleceainriaedf/en/>
- School, Sparsity for Physics, Signal, Learning <https://sparsity4psl.github.io/>

7.1.1.2. Member of the Organizing Committees

I. Waldspurger has co-organized a session on phase retrieval at the SamTA conference 2019.

7.1.2. Scientific Events: Selection

7.1.2.1. Reviewer

V. Duval has reviewed several contributions for the GRETSI conference.

7.1.3. Journal

7.1.3.1. Member of the Editorial Boards

G. Carlier is on the Editorial board of J. Ec. Polytechnique, Mathematics and Fin. Econ., Applied Math. and Optim., Journal of Mathematical Analysis and Applications and J. Dyn. Games,

7.1.3.2. Reviewer - Reviewing Activities

I. Waldspurger has performed reviews for several journals (Applied and Computational Harmonic Analysis, Journal of Fourier Analysis and Applications, IEEE Transactions on Signal Processing and IEEE Transactions on Information Theory) and for the ICML conference.

V. Duval has performed reviews for SIAM Journal on Imaging Sciences, Information and Inference: a Journal of the IMA, Bulletin of the London Mathematical Society, Inverse Problems.

T. O. Gallouët has performed reviews for Analysis & PDE, Archive for Rational Mechanics and Analysis ARMA, Mathematics of computation (Math. of Comp.).

A. Natale has performed reviews for Journal of Scientific Computing (JOMP).

P. Pegon has performed reviews for Journal of Mathematical Analysis and Applications and Advances in Calculus of Variations.

7.1.4. Invited Talks

- J-D. Benamou, Seminar Monash University (Aug., Melbourne), Workshop on Monge-Ampère in honor of Prof. J. Urbas (Aug. , Kiama), Workshop on Optimal Transport and Optimal Patterns (Sept. , Edinburgh), Workshop on Risk in Finance (Oct. , Marseille)
- V. Duval: Workshop Variational methods and optimization in Imaging (IHP, Paris), Workshop on Signal and Image Analysis (MSIA'19, Burghausen, Germany), Two workshops at Conference on Applied Inverse Problems (AIP'19, Grenoble), Workshop Computational aspects of Geometry (U. Paul Sabatier, Toulouse), Conference Optimization on Measure Spaces (U. Paul Sabatier, Toulouse)
- G. Carlier Orsay (ANEDP), workshop Transport optimal Toulouse, ANR Shapo (Paris 7), Workshop Optimal Transport and Economics (Fields Institute, Toronto), Optimal transport in analysis and probability (Vienne, E. Schrodinger Institute).
- I. Waldspurger: Workshop on operator theoretic methods in dynamic data analysis and control (UCLA, États-Unis), workshop on imaging and machine learning (IHP, Paris), series of lectures on waves and imaging (ETH Zurich), séminaire parisien d'optimisation (IHP, Paris), workshop on computational aspects of geometry (U. Paul Sabatier, Toulouse)
- A. Natale: MAGA days (Université Paris-Sud, Paris), Journée de rentrée de l'équipe ANEDP (Université Paris-Sud, Paris), Rencontres Inria-LJLL en calcul scientifique (LJLL, Paris), Workshop on Variational Discretization for GFD (Fields Institute, Canada).
- P. Pegon: Séminaire d'analyse (EPFL, Lausanne, Suisse)
- T. O. Gallouët: Séminaire CMAP, École polytechnique.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

- Licence : J-D. Benamou, Méthodes Numériques , 39 H. équivalent TD, niveau (L2), université Paris Dauphine , FR
- Licence : V. Duval, Probabilités Multidimensionnelles, 39 h équivalent TD, niveau L2, Université Paris-Dauphine, FR
- Master : V. Duval, Optimization for Machine Learning, 9h, niveau M2, Université PSL/ENS, FR
- Licence : I. Waldspurger, Analyse 2, 45 h équivalent TD, niveau L1, Université Paris-Dauphine, FR
- Master : I. Waldspurger, Optimization for Machine Learning, 6h, niveau M2, Université PSL/ENS, FR
- Licence : G. Carlier, algèbre 1, L1 78h, Dauphine, FR
- Master : G. Carlier Variational and transport methods in economics, M2 Masef, 27h, Dauphine, FR
- Licence : A. Natale, Python, 44 h équivalent TD, niveau L2, Université Paris-Sud , FR
- Licence : P. Pegon, Analyse 3, 51 H. équivalent TD, TD niveau L2, Université Paris-Dauphine, FR
- Licence : P. Pegon, Intégrale de Lebesgue et probabilités, 44 H. équivalent TD, TD niveau L3, Université Paris-Dauphine, FR
- Master : P. Pegon, Pré-rentrée d'analyse, 16 H. équivalent TD, cours/TD niveau M1, Université Paris-Dauphine, FR
- Licence : T. O. Gallouët, Optimisation, 24h équivalent TD, niveau L3, Université d'Orsay), FR

7.2.2. Supervision

- PhD in progress : Paul Catala, Optimisation polynomiale pour les problèmes inverses en imagerie, 01/10/2016, V. Duval
- PhD in progress : Romain Petit, Méthodes sans grille pour l'imagerie, 01/10/2019, V. Duval

- PhD in progress : J-D. Benamou, Miao Yu, Application of optimal transport theory in seismic full waveform inversion, 1/10/2016. Co-supervised by J.-P. Vilotte (IPGP)
- PhD in progress : J-D. Benamou, Lucas Martinet, Calcul Haute Performance pour le Transport Optimal, application en Astrophysique, 1/10/2017
- PhD in progress : J-D. Benamou, Giorgi Rukhaia , An Optimal Transportation computational approach of inverse free-form optical surfaces design for extended sources, 1/05/2018
- PhD in progress: G. Carlier, Quentin Petit, mean-field games for cities modeling, (co-supervision with Y. Achdou and D. Tonon), 1/09/2018
- PhD in progress: G. Carlier, Katharina Eichinger, Systems of Monge-Ampere equations: a variational approach 1/09/2019
- PhD in progress: T. O. Gallouët, Gabriele Todeschi, Optimal transport and finite volume schemes, 1/09/2018

7.2.3. *Juries*

J-D. Benamou, PhD Defense of Aude Genevay (13/03).

G. Carlier was in the Ph.D committee of Michael Orioux, Aymeric Baradat and Rui Chen.

7.3. **Popularization**

- I. Waldspurger, *Quand les films prennent des couleurs*, exposé au cycle SMAI & Musée des arts des métiers

OURAGAN Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Elias Tsigaridas was the program chair of Mathematical Aspects of Computer and Information Sciences (MACIS 2019), which was held at Istanbul, 13-15 November 2019.

10.1.1.2. Member of the Organizing Committees

A. Quadrat was a member of the organization committee of the *Journées Nationales de Calcul Formel (JNCF)*, Luminy, France, 04-08/02/2019. He is now a member of the scientific committee of JNCF.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

Elias Tsigaridas was a program committee member of Computer Algebra in Scientific Computing (CASC 2019).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Elisha Falbel is a member of the editorial board of *São Paulo Journal of Mathematical Sciences - Springer*
- Antoine Joux is a member of the editorial board of *Designs, Codes and Cryptography*
- Alban Quadrat is associate editor of *Multidimensional Systems and Signal Processing*, Springer
- Fabrice Rouillier is a member of the editorial board of *Journal of Symbolic Computation*

10.1.4. Leadership within the Scientific Community

Alban Quadrat co-organized the invited sessions *Algebraic and symbolic methods for mathematical systems theory* and *New trends in computational methods for time-delay systems* at the *Join Joint IFAC Conference 7th Symposium on Systems Structure and Control and 15th Workshop on Time Delay Systems*, 9–11 September 2019, Sinaia, Romania

Elias Tsigaridas organized a session on *Algebraic and geometric tools for optimisation and statistics* during the PGMO days 2019, at the EDF'Lab Palaiseau, December 2019.

10.1.5. Research Administration

- Alban Quadrat is a member of the Conseil d'Administration of the Société Mathématique de France (SMF).
- Fabrice Rouillier is a member of the scientific committee of the Indo French Centre for Applied Mathematics.
- Elisha Falbel is director of the "École Doctorale Sciences Mathématiques de Paris Centre - ED 386".

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Fabrice Rouillier: Course in Algebraic Computations, M1, 24h, Sorbonne Université

- Fabrice Rouillier: Course in "Agrégation Option - C", M2, 31 heures, Sorbonne Université
- Antonin Guilloux: Courses and administration of the general math courses in L1 at Sorbonne Université
- Elisha Falbel: First year 'mathématiques approfondie' and master class on Riemann surfaces.
- Pierre-Vincent Koseleff : head of the Master 2 "pr éparation à l'agrégation de mathématiques" at Sorbonne Université.
- Pierre-Vincent Koseleff : Course in M2 "Agrégation de Mathématiques", Computer Algebra, Option C, 100h. Sorbonne Université.
- Pierre-Vincent Koseleff : Course in L3, "algèbre appliquée".

10.2.2. Supervision

PhD in progress: Thomas Espitau, 09/2016, directed by Antoine Joux

PhD in progress: Natalia Kharchenko, 09/2016, directed by Antoine Joux

PhD in progress: Mahya Mehrabdollahei, 09/2018, directed by Antonin Guilloux and Fabrice Rouillier

PhD in progress: Grace Younes, 09/2018, directed by Alban Quadrat and Fabrice Rouillier

PhD in progress: Christina Katsamaki, 09/2019, directed by Elias Tsigaridas and Fabrice Rouillier

PhD in progress: Sudarshan Shinde, 09/2016, directed by Razvan Barbulescu and Pierre-Vincent Koseleff

PhD in progress: Raphael Alexandre, 09/2019, directed by Elisha Falbel.

10.2.3. Juries

Alban Quadrat was a member of the PhD defense committee of Elisa Hubert, *Surveillance vibratoire d'une transmission de puissance aéronautique*, University of Lyon & Safran Tech, 28/06/2019.

Elisha Falbel was a member of the Habilitation defense committee of Junyan Cao, *Positivité des images directes, extension d'Ohsawa-Takegoshi et applications*, Sorbonne Université, 25/10/2019.

10.3. Popularization

- Alban Quadrat co-edited the book *Le Jeu de rôle sur table : un laboratoire de l'imaginaire*, Carrefour des lettres modernes, n. 7, Classiques Garnier, 2019.
- Fabrice Rouillier is a member of the editorial board of *Interstices*
- Fabrice Rouillier is *chargé de mission médiation* at Inria Paris
- Fabrice Rouillier is a member of the *comité de pilotage de l'année des mathématiques*
- Fabrice Rouillier is a member of the *comité de pilotage de la semaine des mathématiques*
- Fabrice Rouillier is the president of the association *Animath*⁰
- Fabrice Rouillier is member of the scientific board of the SMF ⁰conference *Mathématiques étonnantes*⁰

10.3.1. Internal or external Inria responsibilities

- Alban Quadrat is a member of the technical committee *Linear Systems* of the *International Federation of Automatic Control* (IFAC)
- Elias Tsigaridas is a member of the Evaluation committee (Commission d'Évaluation) of Inria.

10.3.2. Interventions

- Fabrice Rouillier participated to the *semaine des mathématiques* for the Paris Inria Paris research center
- Fabrice Rouillier participated to the welcoming of schoolchildren for their *semaine d'observation* at Inria Paris research center.

⁰<http://www.animath.fr>

⁰Société Mathématique de France

⁰<https://smf.emath.fr/actualites-smf/mathematiques-etonnantes-programme>

PARKAS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Chair of Conference Program Committees

- T. Bourke co-chaired the program committee of the ACM/IEEE international conference on Embedded Software (EMSOFT 2019).

9.1.1.2. Member of the Conference Program Committees

- T. Bourke served on the PC of the Euromicro Conference on Real-Time Systems (ECRTS 2019).
- T. Bourke served on the PC of the international workshop on Software and Compilers for Embedded Systems (SCOPEs 2019).
- T. Bourke served on the PC of the international Modelica conference (MODELICA 2019).
- T. Bourke served on the PC of the OCaml Users and Developers Meeting (OCaml 2019).
- M. Pouzet served on the PC of the program committee of the ACM/IEEE international conference on Embedded Software (EMSOFT 2019).
- M. Pouzet served on the PC of the international workshop on Software and Compilers for Embedded Systems (SCOPEs 2019).
- M. Pouzet served on the PC of the international workshop on Cyber-Physical Systems (CyPhy), a satellite event of ESWEEK.
- F. Zappa Nardelli served on the PC of the international conference on Object-Oriented Programming, Systems, Languages & Applications (OOPSLA 2019).
- F. Zappa Nardelli served on the PC of the ACM Workshop on Gradual Types (WGC 2020).

9.1.1.3. Reviewer

- T. Bourke reviewed submissions for the international conference on Computer Aided Verification (CAV 2019)
- T. Bourke reviewed submissions for the international conference on Object-Oriented Programming, Systems, Languages & Applications (OOPSLA 2019).

9.1.2. Journal

9.1.2.1. Reviewer - Reviewing Activities

- T. Bourke reviewed articles for the Journal of Logical and Algebraic Methods in Programming (JLAMP).

9.1.3. Research Administration

- F. Zappa Nardelli chaired the part-time assistant professor recruitment committee at École Polytechnique.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Marc Pouzet is Director of Studies for the CS department, at ENS.

Licence : M. Pouzet & T. Bourke: “Operating Systems” (L3), Lectures and TDs, ENS, France.

Licence : T. Bourke, “Digital Systems” (L3), Lectures and TDs, ENS, France

Master: M. Pouzet & T. Bourke: “Synchronous Systems” (M2), Lectures and TDs, MPRI, France

Master: M. Pouzet: “Synchronous Reactive Languages” (M2), Lectures, Master COMASIC (École Polytechnique) and FIL (Université Paris-Sud, Saclay), France

Master: T. Bourke, lab classes for “A Programmer’s introduction to Computer Architectures and Operating Systems” (M1), École Polytechnique, France

Master: F. Zappa Nardelli: “A Programmer’s introduction to Computer Architectures and Operating Systems” (M1), 45h, École Polytechnique, France

Bachelor: F. Zappa Nardelli: “A Programmer’s introduction to Computer Architectures and Operating Systems”, 20h, École Polytechnique, France

Internships T. Bourke participated in reviewing the L3 and M1 internships of students at the ENS, France.

M1 Projects: T. Bourke is directing two M1 research projects.

9.2.2. Supervision

- PhD in progress: Lélío Brun, under review, supervised by T. Bourke and M. Pouzet.
- PhD in progress: Ismail Lakhim-Bennani, 1st year, supervised by M. Pouzet, G. Frehse, and T. Bourke
- PhD in progress: Basile Clément, 1st year, supervised by F. Zappa Nardelli and M. Pouzet.
- PhD: Chandan Reddy, supervised by A. Cohen, defended in March 2019.
- PhD: Ulysse Beaunon, supervised by A. Cohen and M. Pouzet, defended in June 2019.

9.2.3. Juries

- T. Bourke was a jury member for the for the PhD thesis of Steven Varoumas, November 2019.
- F. Zappa Nardelli was a jury member for the PhD thesis of Francois Ginraud, Grenoble, Jan 2019.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- T. Bourke participated in the *commission d’emplois scientifiques* (postdocs, delegations, and PhDs) for the Inria Paris research centre.
- T. Bourke participated in the PhD progress committees (*suivi doctorale*) for B. Medeiros de Barros and N. Kulatova.
- T. Bourke and M. Pouzet participated in meetings with the *Ministère de la Transition écologique et solidaire* on the validation of autonomous driving systems.

PL.R2 Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

Alexis Saurin, as coordinator of GT-Scalp is member of the organizing committee of the annual meeting of the working group. In 2019, the annual meeting took place in ENS Lyon in October 2019: <https://www.irif.fr/gt-scalp/journees-2019>.

9.1.1.2. Member of the Steering Committees

Pierre-Louis Curien is member of the steering committee of the international workshop Games for Logic and Programming Languages (GaLop).

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

Pierre-Louis Curien is member of the program committee of Formal Structures for Computation and Deduction 2020, Paris, June-July 2020.

Yann Régis-Gianas was member of the program committee of Software Language Engineering 2019.

Alexis Saurin was a member of the program committee of Circularity in Syntax and Semantics, held in Gothenburg in November 2019.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Pierre-Louis Curien is editor in chief of the Cambridge University Press journal Mathematical Structures in Computer Science (since January 2016). Alexis Saurin is a guest editor of the special issue of MSCS on structural proof theory, automated reasoning and computation in celebration of Dale Miller's 60th birthday published in September 2019.

9.1.3.2. Reviewer - Reviewing Activities

Pierre Letouzey has done several reviews for the Journal of Functional Programming (JFP) and for Science of Computer Programming. Yann Régis-Gianas reviewed a paper for Transactions on Programming Languages and Systems (TOPLAS).

9.1.4. Invited Talks

Hugo Herbelin gave an invited talk on the logical structure of choice and bar induction principles at the Proof, Computation and Complexity workshop (Mittag-Leffler institute). Yann Régis-Gianas gave an invited talk at the DeepSpec workshop of PLDI 2019 about FreeSpec.

9.1.5. Conferences and schools attended

Pierre-Louis Curien presented his joint work on Proofs and surfaces at the conference Topology, Algebra, and Categories in Logic (TACL) 2019, Nice, in June 2019.

Pierre-Louis Curien and Yves Guiraud attended the workshop Homotopy meets homology, Dublin, May 2019.

Pierre-Louis Curien and Yves Guiraud attended the *Higher Structures* conference, Marseille, January 2019.

Pierre-Louis Curien and Cédric Ho Thanh attended the Category Theory 2019 conference, Edinburgh, July 2019.

Pierre-Louis Curien attended Martin Hofmann Memorial Meeting, Munich, July 2019.

Abhishek De attended the Proof Society summer school at Swansea in September 2019.

Cédric Ho Thanh attended the Summer school on Topology, Algebra, and Categories in Logic at Ile de Porquerolles in June 2019.

Hugo Herbelin and Hugo Moeneclaey attended the Types Conference, Oslo, June 2019.

Hugo Moeneclaey attended the International Conference on Homotopy Type Theory (HoTT 2019) and the associated Homotopy Type Theory Summer School, Pittsburgh, August 2019.

Hugo Herbelin attended the Third Workshop on Mathematical Logic and its Applications, Nancy, March 2019.

Hugo Herbelin attended the Workshop Facets of Realizability, Cachan, July 2019.

9.1.6. Leadership within the Scientific Community

9.1.6.1. Scientific Expertise

Hugo Herbelin was a member of the HCERES committee evaluating the MICS laboratory of Centrale Supélec.

9.1.6.2. Research Administration

Pierre-Louis Curien has been a member of the Scientific Council of the CIRM (Centre International de Rencontres Mathématiques) until February 2019.

Pierre-Louis Curien was a member of the scientific council of the Computer Science department of University Paris Diderot until May 2019.

Yves Guiraud was the coordinator of the Proofs, Programs and Systems (PPS) pole at IRIF, and a member of the IRIF comité de direction, until August 2019. Since September 2019, Hugo Herbelin coordinates the PPS pole.

Yves Guiraud was a member of the Conseil Scientifique of the CS department of Univ. Paris Diderot until June 2019.

Yves Guiraud is a member of the Conseil Scientifique of the Math department of Univ. Paris Diderot since April 2019.

Alexis Saurin is a coordinator of the Scalp working group of GDR Informatique Mathématique: <https://www.irif.fr/gt-scalp/index>

Alexis Saurin is member of the “commission recherche” of both Faculté des Sciences and Faculté Société et humanités at Université de Paris.

Alexis Saurin and Hugo Herbelin are members of the IRIF conseil de laboratoire.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Master: Matthieu Sozeau, Assistants de Preuve, 18h ETD, MPRI, University Paris Diderot.
- Master: Pierre-Louis Curien, Models of programming languages: domains, categories, games (together with Thomas Ehrhard and Paul-André Melliès), 15h, MPRI, University Paris Diderot.
- Master level: Pierre-Louis Curien taught a course on the Foundations of Programming Languages at East China Normal University (4 hours, November-December 2019).
- Master: Hugo Herbelin taught a class on Homotopy Type Theory (together with Nicolas Tabareau), 24h, LMFI, University Paris Diderot.
- Master: Pierre Letousey teaches two short courses to the LMFI Master 2 students : “Programming in Coq” and “Introduction to computed-aided formal proofs”. These two courses come in addition to Pierre Letousey’s regular duty as teacher in the Computer Science department of University Paris Diderot (including a course on Compilation to M2-Pro students and a course on computed-aided formal proofs to M1 students).

- Master: Yann Régis-Gianas, Functional programming and Type Systems, 12h, MPRI (in addition to four other courses at the master level in University Paris Diderot).
- Master: Alexis Saurin, Outils classiques pour la correspondance de Curry-Howard, 24H, LMFI.
- Summer school: Pierre-Louis Curien gave an introductory mini-course on Homotopy type theory at the Fifteenth International Tbilisi Summer School in Logic and Language, Georgia, in September 2019 (3h).
- Summer school: Hugo Herbelin gave a lecture on type theory at the EUTypes Summer School, Ohrid, in September 2019 (4h).
- Yann Régis-Gianas organised the 4th session of the OCaml MOOC on the FUN platform.
- Yann Régis-Gianas organised the “Journée Francilienne de Programmation”, a programming contest between the first years students of University Paris Sorbonne, University Paris Saclay and University Paris Diderot.

9.2.2. Supervision

9.2.2.1. PhD Supervision

- PhD started: Félix Castro, Computational contents of the model of constructible sets, cotutelle between Université Paris Diderot and Universidad de la República (Montevideo, Uruguay), started in September 2019, supervised by Hugo Herbelin and Alexandre Miquel.
- PhD Started: Kostia Chardonnet, Inductive and coinductive types in quantum programming languages, Université Paris Saclay, started in November 2019, supervised by Alexis Saurin and Benoît Valiron.
- PhD started: Alen Durić, Normalisation for monoids and higher categories, Université Paris Diderot, started in October 2019, supervised by Yves Guiraud and Pierre-Louis Curien.
- PhD started: Colin Gonzalez, Certified compilation of spreadsheets as Tezos smart contract, CIFRE, started in September 2019, supervised by Yann Régis-Gianas and Benjamin Canou (Nomadic Labs).
- PhD started: Farzad Jafar-Rahmani, Denotational semantics of circular and non-well-founded proofs, Université Paris Diderot, started in October 2019, supervised by Thomas Ehrhard and Alexis Saurin.
- PhD started: Hugo Moeneclaey, Syntax of spheres in homotopy type theory, Université Paris Diderot, started in September 2019, supervised by Hugo Herbelin.
- PhD in progress: Antoine Allieux, Opetopes in Type Theory, Université Paris Diderot, since March 2018, supervised by Yves Guiraud and Matthieu Sozeau.
- PhD in progress: Abhishek De, Proof-nets for fixed-point logics and non-well-founded proofs, Université Paris Diderot, since October 2018, supervised by Alexis Saurin.
- PhD in progress: Cédric Ho Thanh, Opetopes for higher-dimensional rewriting and Koszulity, Université Paris Diderot, since September 2017, supervised by Pierre-Louis Curien and Samuel Mimram.
- PhD in progress: Lucas Massoni Sguerra, Formal verification of mechanism design, Université PSL, since January 2018, supervised by Gérard Memmi, Fabien Coehlo, and Emilio J. Gallego Arias.
- PhD in progress: Rémi Nollet, Validity conditions for circular proofs, Université Paris Diderot, since October 2016, supervised by Alexis Saurin and Christine Tasson.
- PhD in progress: Théo Winterhalter, Metatheory and certified implementation of type theories, Université de Nantes, since September 2017, supervised by Nicolas Tabareau and Matthieu Sozeau.
- PhD ended: Gaëtan Gilbert, A type theory with definitional proof-irrelevance, École Nationale Supérieure Mines-Télécom Atlantique Bretagne Pays de la Loire - IMT Atlantique, defended on 20 December 2019, supervised by Nicolas Tabareau and Matthieu Sozeau.
- PhD ended: Théo Zimmermann, Challenges in the collaborative evolution of a proof language and its ecosystem, Université Paris Diderot, defended on 12 December 2019, supervised by Hugo Herbelin and Yann Régis-Gianas.

9.2.2.2. Internships

- Hugo Herbelin supervised the master internship of Adrien Champougny on a type-theoretic presentation of Primitive Recursive Arithmetic.
- Hugo Herbelin supervised the master internship of Hugo Moeneclaey on a syntax and semantics for cubical type theory with definitional univalence.
- Yann Régis-Gianas supervised the third-year licence internship of Alexandre Moine about the detection of clones in OCaml programs.
- Yann Régis-Gianas supervised the first-year master internship of Astyax Nourel and Sébastien Lecleire about the implementation of an instance server for Learn-OCaml.
- Yann Régis-Gianas cosupervised with Thomas Letan (ANSSI) the master internship of Vincent Tourneur about the certification of a Unix utility using FreeSpec.
- Alexis Saurin supervised the first-year master internship of Lucien David about Coq formalisation of circular proof systems.
- Alexis Saurin cosupervised with Benoît Valiron the MPRI internship of Kostia Chardonnet on (co)inductive types in reversible programming languages.

9.2.3. Juries

- Hugo Herbelin was reviewer of the PhD of Ulysse Gérard.
- Hugo Herbelin was president of the PhD committee of Kenji Maillard.
- Alexis Saurin was member of the jury of the entrance competition to Écoles normales supérieures, in charge of the computer science exam (informatique-mathématiques), for the last three years.

9.3. Popularisation

9.3.1. Internal or external Inria responsibilities

- Yves Guiraud is “correspondant communication” for IMJ-PRG at INSMI.
- Yann Régis-Gianas is “correspondant communication” for IRIF at INS2I.
- Jean-Jacques Lévy is member of the Inria-Alumni’s executive committee (4 meetings in 2019).

9.3.2. Education

- Yann Régis-Gianas presented the Learn-OCaml project at the OCaml workshop, at the OCaml Meetup, at the University of Lisbon and at the JFLA.
- Yann Régis-Gianas gave a talk at the conference of CPGE teachers of computer science to present the Learn-OCaml project.

9.3.3. Interventions

- Jean-Jacques Lévy was invited by the French Academy of Sciences to participate to the Nanjing Tech Week (June 22-24) and to visit the new Qingdao International Academician Park (June 28). He also visited the Institute of Software of the Chinese Academy of Sciences (ISCAS) on July 1-3.
- Jean-Jacques Lévy as a member of the AEFC (Association des Experts France Chine) was invited to the 2019 Hangzhou International Human Resources Exchanges and Cooperation Conference (Hangzhou, November 9-11). He also visited the East China Normal University (ECNU) Shanghai (November 12-15) and Jinan University at Guangzhou (November 18-19).
- Jean-Jacques Lévy gave a talk about the Four Ages of Computer Science at the Huashang College in Guangzhou (November 18).

9.3.4. Internal action

Jean-Jacques Lévy talked about “L’informatique en 4 temps” at the Café des Sciences at Inria Rocquencourt (February 12) and to the Journées Européennes du Patrimoine at Inria-Rocquencourt (21 September).

POLSYS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

D. Wang was General co-chair of the 44th International Symposium on Symbolic and Algebraic Computation (ISSAC 2019), Beijing, China, July 15-18, 2019).

9.1.1.2. Member of the Organizing Committees

J. Berthomieu was Poster chair of the 44th International Symposium on Symbolic and Algebraic Computation (ISSAC 2019), Beijing, China, July 15-18, 2019).

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

E. Prouff was member of the program committees of the following conferences:

- Smart Card Research and Advanced Application Conference (CARDIS) 2019
- IACR Transactions on Cryptographic Hardware and Embedded Systems (TCHES) 2019

D. Wang was member of the program committee of the International Symposium on Wen-Tsun Wu's Academic Thought and Mathematics Mechanization (Wu 2019) (Beijing, China, May 12-17, 2019). He was member of the scientific committee of the 4th International Conference on Numerical and Symbolic Computation (SYMCOMP 2019) (Porto, Portugal, April 11-12, 2019).

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

E. Prouff is member of the editorial board of Journal of Cryptographic Engineering.

M. Safey El Din is member of the editorial board of Journal of Symbolic Computation.

D. Wang is Editor-In-Chief of Mathematics in Computer Science (published by Birkhäuser- Springer, Basel) and member of the Advisory Board for the journal • SCIENCE CHINA Information Sciences (published by Science China Press, Beijing and Springer, Berlin).

D. Wang is member of the Editorial Boards for the Journal of Symbolic Computation (published by Academic Press/Elsevier, London), SN Computer Science (published by Springer Nature, Switzerland), Texts and Monographs in Symbolic Computation (published by Springer, Wien New York).

D. Wang is member of the International Advisory Board for Communications of JSSAC (Japan Society for Symbolic and Algebraic Computation) (published by JSSAC).

9.1.4. Invited Talks

E. Prouff was invited speaker at Spring School on Hardware Security (UK), the NIST Threshold Cryptography Workshop (USA), the Summer School on Real World Crypto and Privacy and the conference on Boolean Functions and Applications (BFA).

M. Safey El Din was invited speaker at the Arctic Applied Algebra conference (Norway), the workshop on Geometry of Real Polynomials, Convexity and Optimization at BIRS Banff International Research Station (Canada), the and the Conference in memory of Wen-tsun Wu's centennial birthday (China).

9.1.5. Scientific Expertise

M. Safey El Din was expert for the Czech Republic funding agency.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Jérémy Berthomieu had the following teaching activities:

Master : Polynomial System Solving, 13 hours, M2, Sorbonne Université & Polytech' Sorbonne, France.

Master : Computation Modeling, 42 hours, M1, Sorbonne Université, France.

Master : In charge of Basics of Algebraic Algorithms, 50 hours, M1, Sorbonne Université & Polytech' Sorbonne, France.

Master : Projects supervision, 7 hours, M1, Sorbonne Université, France.

Licence : Introduction to Cryptology, 15,75 hours, L3, Sorbonne Université , France.

Licence : Introduction to Numerical Algorithmic, 4,75 hours, L3, Sorbonne Université , France.

Licence : Introduction to Shell, 38,75 hours, L2, Sorbonne Université , France.

Licence : Projects supervision, 10 hours, L2, Sorbonne Université, France.

Jean-Charles Faugère had the following teaching activities:

Master : Polynomial Systems solving, 12 hours, M2, MPRI, France.

Ludovic Perret had the following teaching activities:

Master : Polynomial Systems solving, 12 hours, M2, MPRI, France.

Mohab Safey El Din has the following teaching activities:

Master : Polynomial System Solving, 40 hours, M1, Sorbonne Université & Polytech' Sorbonne, France.

Master : In charge of the curriculum on Security, Reliability of Performance in Computing, 30 hours, M1, Sorbonne Université , France.

Master : Projects management, 20 hours, M1, Sorbonne Université, France.

Licence : Projects supervision, 10 hours, L2, Sorbonne Université, France.

9.2.2. Supervision

PhD : Matías Bender, Algorithms for sparse polynomial systems: Grbner basis and resultants, June 2019, Jean-Charles Faugère and Elias Tsigaridas.

PhD in progress : Thi Xuan Vu, Faster algorithms for structured polynomial systems, started in Oct. 2017, Jean-Charles Faugère and Mohab Safey El Din.

PhD in progress : Phuoc Le, Real root classification and polar varieties, started in Oct. 2018, Jean-Charles Faugère and Mohab Safey El Din.

PhD in progress : Olive Chakraborty, Conception and cryptanalysis in secure quantic cryptography, started in May 2017, Jean-Charles Faugère and Ludovic Perret.

9.2.2.1. Juries

E. Prouff was member of the PhD committes of:

- Nicolas Belleville, Université Grenoble Alpes, 21-11-2019, "Compilation pour l'application de contre-mesures contre les attaques par canal auxiliaire"
- Joey Green, Université de Bristol, 20-10-2019, "A Study of Inference-Based Attacks with Neural Networks"
- Aberrahman DAIF, Université Paris 8, 03-05-2019, "Les codes correcteurs au service de la cryptographie symétrique et asymétrique"

J.C. Faugère was member of the PhD committes of:

- Robin Larrieu, École Polytechnique, dec. 2019, "Arithmetique rapide pour des corps finis"

PROSECCO Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Catalin Hritcu is the Steering Committee Chair of the Workshop on Principles of Secure Compilation (PriSC)
- Catalin Hritcu is the main organizer a Dagstuhl Seminar on Secure Compilation (2020)
- Karthikeyan Bhargavan co-chaired the Workshop on Secure Messaging at EUROCRYPT 2019

10.1.1.2. Member of the Organizing Committees

- Catalin Hritcu is a Steering Committee Member of the 9th ACM SIGPLAN International Conference on Certified Programs and Proofs (CPP)

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Catalin Hritcu served as Program Chair of the 9th ACM SIGPLAN International Conference on Certified Programs and Proofs (CPP)

10.1.2.2. Member of the Conference Program Committees

- Karthikeyan Bhargavan was PC member of CCS 2019
- Bruno Blanchet was PC member of CSF 2019
- Catalin Hritcu was PC member of RV 2019, SecDev 2019, CSF 2020

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Associate Editor

- of the *International Journal of Applied Cryptography (IJACT)* – Inderscience Publishers:
Bruno Blanchet

10.1.4. Invited Talks

- Karthikeyan Bhargavan gave invited talks at ERCIM Rome, FSTTCS Mumbai, ICISS Hyderabad,
- Catalin Hritcu gave invited talks at EPFL Lausanne, Ruhr University Bochum, MPI-SWS, and Chalmers University;

10.1.5. Leadership within the Scientific Community

- Catalin Hritcu served as the Artifact Evaluation Co-Chair for POPL 2018 and POPL 2019

10.1.6. Scientific Expertise

- Bruno Blanchet is a member of the specialized temporary scientific committee of ANSM (*Agence nationale de sécurité du médicament et des produits de santé*), on the cybersecurity of software medical devices.
- Bruno Blanchet was a scientific consultant for Nomadic Labs, regarding the development of the blockchain Tezos.
- Karthikeyan Bhargavan was scientific consultant for Nomadic Labs, regarding verified cryptographic software.

10.1.7. Research Administration

- Bruno Blanchet was a member of the hiring scientific jury for Inria researchers (*chargé de recherche*) of the Inria Paris center.
- Bruno Blanchet was a representative of Inria Paris at the DIM RFSI (*Domaine d'Intérêt Majeur, Réseau Francilien en Sciences Informatiques*).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: Bruno Blanchet, Cryptographic protocols: formal and computational proofs, 18h equivalent TD, master M2 MPRI, université Paris VII
- Master: Karthikeyan Bhargavan, Cryptographic protocols: formal and computational proofs, 18h equivalent TD, master M2 MPRI, université Paris VII
- PhD: Karthikeyan Bhargavan, Verified Crypto for Verified Protocols, Sibenik Summer School on real-world crypto and privacy, 17-21 June, 2019
- PhD: Catalin Hritcu, Program Verification with F* course at Summer School on Verification Technology, Systems, and Applications, VSTA 2019, 1-5 July 2019 at University of Luxembourg
- PhD: Catalin Hritcu, Writing and Verifying Functional Programs in Coq course at Summer School on Cryptography, Blockchain, and Program Verification, Mathinfoly 2019, 24-31 August 2019 at INSA, Lyon

10.2.2. Supervision

- PhD in progress: Benjamin Lipp, On Mechanised Cryptographic Proofs of Protocols and their Link with Verified Implementations, ENS Paris, since October 2018, supervised by Bruno Blanchet and Karthikeyan Bhargavan.
- PhD in progress: Benjamin Beurdouche, Formal Verification for Real-World Cryptographic Protocols, PSL, since September 2016, supervised by Karthikeyan Bhargavan.
- PhD in progress: Natalia Kulatova, Formal Analysis of Security Devices, PSL, since September 2017, supervised by Karthikeyan Bhargavan and Graham Steel.
- PhD in progress: Marina Polubelova, Formal Verification of a Cryptographic Library, PSL, since September 2017, supervised by Karthikeyan Bhargavan.
- PhD in progress: Denis Merigoux, Verification framework for performance-oriented memory-safe programming languages, since September 2018, supervised by Karthikeyan Bhargavan and Jonathan Protzenko.
- PhD: Kenji Maillard, on Principles of Program Verification for Arbitrary Monadic Effects, started January 2017, supervised by Catalin Hritcu
- PhD in progress: Carmine Abate, The Formal Foundations of Secure Compilation, since June 2018, advised by Catalin Hritcu
- PhD in progress: Jérémy Thibault, Secure Compartmentalizing Compilation to a Tagged Architecture, from August 2018, advised by Catalin Hritcu
- PhD in progress: Guido Martínez (CIFASIS-CONICET Rosario), Metatheory for Semi-Automatic Verification of Effectful Programs, from April 2017, advised by Mauro Jaskelioff (CIFASIS-CONICET Rosario) and Catalin Hritcu

10.2.3. Juries

- Bruno Blanchet was member of the PhD jury of Adrien Koutsos (ENS Paris-Saclay).
- Karthikeyan Bhargavan was member of the PhD jury of Joseph Lallemand (Univ. Lorraine) and Guido Martinez (Univ Stuttgart).

- Catalin Hritcu was a discussion leader for the Licentiate defense of Maximilian Algehed (Chalmers University);

10.3. Popularization

10.3.1. Articles and contents

- Catalin Hritcu contributed an article on Secure Compilation to the SIGPLAN PL Perspectives blog
- Karthikeyan Bhargavan published a paper in Communications of the ACM

QUANTIC Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Journal

8.1.1.1. Member of the Editorial Boards

Pierre Rouchon is member of the editorial board of Annual Reviews in Control.

8.1.1.2. Reviewer - Reviewing Activities

- Philippe Campagne-Ibarcq was a reviewer for Physical Review Letters.
- Zaki Leghtas was a reviewer for Physical Review Letters, Physical Review X and Nature Physics.
- Alain Sarlette was a reviewer for several automatic control and dynamical systems journals and conferences, as well as for Physical Review Journals

8.1.2. Invited Talks

- Philippe Campagne-Ibarcq : GDR-IQFA (Groupement de Recherche sur l'Ingénierie Quantique, des Aspects Fondamentaux aux Applications).
- Jeremie Guillaud: CEA Leti innovation day, Grenoble.
- Jeremie Guillaud: Byron Bay Quantum Workshop on Bosonic Error-Correcting Codes, Australia.
- Zaki Leghtas: GDR Physique Mésoscopique, Aussois.
- Zaki Leghtas: CIFAR Workshop on Quantum Cavities, Jouvence, Canada.
- Zaki Leghtas: American Physical Society march meeting, Boston, USA.
- Zaki Leghtas: Les Houches summer school on Quantum Information Machines.
- Zaki Leghtas: CEA Leti innovation day, Grenoble.
- Zaki Leghtas: Oulu university, Finland.
- Zaki Leghtas: Quantum and neuromorphic computing, C2N Saclay.
- Mazyar Mirrahimi: Lecture series at Les Houches summer school on Quantum Information Machines.
- Mazyar Mirrahimi: Conference on “Marching towards quantum supremacy”, Princeton Univ., USA.
- Mazyar Mirrahimi: Conference for “20'th anniversary of superconducting qubits”, Tsukuba, Japan.
- Pierre Rouchon: First Quantum Science, Engineering and Technology (qSET) conference, UNSW Canberra, Australia.
- Pierre Rouchon: IFAC Mechatronics and Nolcos Conference, Semi-plenary speaker, Vienna, Austria.
- Pierre Rouchon: 21-hour course on quantum control in the International Graduate School on Mathematical Control, Mathematical College Sichuan University, Chengdu, China.
- Pierre Rouchon: 6-hour course on flat system in the 8eme École d'été de mécanique théorique à destination des doctorants et chercheurs en Mécanique, Quiberon.
- Alain Sarlette: GANIL (Grand Accélérateur National d'Ions Lourds), Caen.
- Alain Sarlette: CIGREF (Club Informatique des Grandes Entreprises Françaises), Paris.
- Alain Sarlette has given an overview of the mathematics involved in quantum dynamics at Ghent University at several occasions.

8.1.3. Scientific Expertise

- Pierre Rouchon is a member of the scientific committee of LAGEP (Laboratoire d'Automatique et de Génie des Procédés) since 2017.
- Pierre Rouchon is a member of the "Conseil Scientifique du DIM Math Innov" since 2017.
- Pierre Rouchon is a member of the "Conseil de la recherche de PSL " since 2016.
- Mazyar Mirrahimi is the co-president of Inria's comité des emplois scientifiques.
- Mazyar Mirrahimi was the vice-president of ANR Comité d'Evaluation Scientifique on Quantum Technologies.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Cycle Ingénieur : Zaki Leghtas, Quantum Mechanics and Statistical Physics, Mines ParisTech, 12 hours, France.

Cycle Ingénieur : Zaki Leghtas, Quantum Computing, Mines ParisTech, 20 hours, France.

Cycle ingénieur: Alain Sarlette, Probabilities and Stochastic Processes, 24 hours TD, Mines Paris-tech, France.

Master: Alain Sarlette, Robotics, 24 hours, Ghent University, Belgium.

Cycle Ingénieur : Mazyar Mirrahimi, Automatic control with Applications in Robotics and in Quantum engineering, 8 hour amphi and 16 hours TD, 3rd year, Ecole Polytechnique, France.

Cycle Ingénieur : Mazyar Mirrahimi, Control of dynamical models, 30 hours TD, 2nd year, Ecole Polytechnique, France.

Cycle Ingénieur : Mazyar Mirrahimi, Module algorithmique quantum control, 24 hours TD, 2nd year, Ecole Polytechnique, France.

Master: Mazyar Mirrahimi and Pierre Rouchon, Dynamics and control of quantum systems, 18 hours amphi, M2, Sorbonne Université, France.

8.2.2. Supervision

PhD in progress : Michiel Burgelman, A systematic study of strongly driven and dissipative quantum systems towards high-accuracy quantum control designs, advisors: Pierre Rouchon and Alain Sarlette, starting date: Nov 2018.

PhD in progress : Jérémie Guillaud, Fault-tolerant quantum computation with cat-qubits, advisor: Mazyar Mirrahimi, starting date: Nov 2017.

PhD in progress : Vincent Martin, Fault-tolerance of quantum systems under continuous-time feedback stabilization, advisor: Mazyar Mirrahimi and Alain Sarlette, starting date: Oct 2018.

PhD in progress: Raphaël Lescanne, Engineering Multi-Photon Dissipation In Superconducting Circuits For Quantum Error Correction, advisors: Zaki Leghtas and Takis Kontos, starting date Sept 2016.

PhD in progress: Marius Villiers, Probing the spin entanglement of single Cooper pair, advisors: Zaki Leghtas and Takis Kontos, starting date: September 2019.

PhD in progress: Camille Berdou, A cat-qubit repetition code, advisors: Zaki Leghtas and Pierre Rouchon, starting date Sept 2019.

PhD in progress: Christian Siegele, Quantum error correction with grid states of light, advisors: Philippe Campagne-Ibarcq and Mazyar Mirrahimi.

PhD: Lucas Verney, Strongly driven quantum Josephson circuits, advisors: Zaki Leghtas and Mazyar Mirrahimi, Defended on July 11th 2019.

PhD: Gerardo Cardona Sanchez, Exponential stabilization of quantum systems subject to non-demolition measurements in continuous time, advisors: Pierre Rouchon and Alain Sarlette, Defended on October 30th 2019.

8.2.3. *Juries*

- Zaki Leghtas was a PhD opponent of Iivari Pietikainen, Oulu Finland.
- Zaki Leghtas was a PhD jury member of Romain Albert, CEA Grenoble.
- Mazyar Mirrahimi was an examiner in the PhD defense of Filippo Vicentini, Paris Diderot University.
- Mazyar Mirrahimi was an examiner in the HDR defense of Igor Dotsenko, Collège de France.
- Pierre Rouchon was reviewer for the Habilitation thesis of Hector Ramirez Estay, Université de Franche-Comté.
- Pierre Rouchon was a reviewer of the PhD thesis of Andreas Deutschmann (TU Vienna), Amira Amraoui (Université de Nice), Yuanlong Wang (University of New South Wales in Canberra).
- Pierre Rouchon was a committee member for the PhD thesis of Christophe Zhan (Sorbonne Université), Vincent Metillon (ENS Paris), Yahao Chen (Université de Rouen), Weichao Liang (Université Paris-Saclay).
- Alain Sarlette has been member of the PhD jury of Nicolas Augier (Ecole Polytechnique) and of Estelle Massart (Université Catholique de Louvain-la-Neuve).

8.3. Popularization

8.3.1. *Articles and contents*

- Zaki Leghtas article in Usbek and Rica (<https://usbeketrica.com/article/aucun-etat-veut-rater-coche-ordinateur-quantique>)

8.3.2. *Interventions*

- Zaki Leghtas: Pint of Science on quantum computing

REO Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

I. Vignon-Clementel: Co-chair of the international conference VPH2020

9.1.1.2. Member of the Organizing Committees

Irene Vignon-Clementel: session to foster collaboration between scientists and medical doctors at the Inria/CentraleSupélec/Ap-Hp meeting, March 28th, Palaiseau, France

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

- I. Vignon-Clementel
 - Programme committee member, Computational and Mathematical Biomedical Engineering Conference
 - Conference steering committee, International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Irene Vignon-Clementel: Associate Editor of the International Journal for Numerical Methods in Biomedical Engineering

9.1.3.2. Reviewer - Reviewing Activities

Irene Vignon-Clementel for several journals such as Annals Biomed Eng, BMMB, Med. engineering & Physics.

9.1.4. Conferences and seminars

- Nicolas Golse
 - talk, 15th French congress of hepato-biliary surgery (ACHBT-SFCD), Hotel Newport Bay, Paris, 27-29 Novembre 2019
 - As part of his clinical research, N. Golse presented 7 conference talks and 5 posters
- Nour Bou Saleh
 - poster: 15th French congress of hepato-biliary surgery (ACHBT-SFCD), Hotel Newport Bay, Paris, 27-29 Novembre 2019
- Florian Joly (supported by Reo)
 - talk, ESB2019, European Society of Biomechanics Conference, July 7-10 2019, Vienna, Austria
 - talk, SB2019, Congress of the French society of biomechanics October 28-30 2019, Poitiers, France
- Irene Vignon-Clementel
 - Invited talk, Day on AI and health, School of medicine, U. Paris-Saclay, Nov 25th, Kremlin-Bicetre, France

- Invited talk, National conference of Biomechanics, Oct 28-30, Poitiers, France
- Round table on Healthcare 4.0, IMT, Oct 15th, St Etienne, France
- Seminar, U. of Tokyo, June 13th, Tokyo, Japan
- Keynote speaker, CMBE conference, June 10th-12th, Tohoku University, Sendai City, Japan
- Keynote speaker, FIMH, June 6-8th, Bordeaux, France
- Invited talk, International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, May 9th-11th, Philadelphia, USA

9.1.5. Leadership within the Scientific Community

Irene Vignon-Clementel: VPHi board meeting, Oct 4th, Paris, France

9.1.6. Scientific Expertise

Irene Vignon-Clementel: Reviewer for several institutions: Helmholtz Institute (Germany), Israeli Science Foundation, Medical research council (UK), Heart research (UK)

9.1.7. Research Administration

- I. Vignon-Clementel
 - Working group to foster innovation for the Inserm strategic plan
 - Technology grant committee (Commission de développement technologique), Inria Paris center
 - Committee member for PhD students at Inria - Commission consultative des doctorants
 - Mediator between PhD students and their supervisors for Inria Paris

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence:

Irene Vignon-Clementel

- Numerical Methods for Ordinary Differential Equations, 24h ETD, L3, UPMC (2nd semester 2018-2019)
- Invited lecture as part of the undergraduate continuum mechanics class at AgroParisTech (engineering school), France

Master:

- Irene Vignon-Clementel
 - Fall school on Ventilation and Music, Cargèse, France (2h30 EDT)
 - MEC 550 - Biofluid Mechanics and Mass Transport, Ecole Polytechnique (engineering school), France (1h30 EDT)
 - Doctoral school cours Innovations thérapeutiques: du fondamental à l'appliqué, bioengineering module at ENS Cachan, France (1h30 EDT)
 - Master 2 Sciences Chirurgicales de l'Université Paris Sud, France (1h30 EDT)
- Nicolas Golse
 - Master 1 Sciences, Techniques et Santé, Faculté Médecine Kremlin Bicêtre (4.5h EDT)

University diploma (DU)

Nicolas Golse:

- DU of hepatobiliary and pancreatic surgery, 6 sessions (9h EDT)

9.2.2. Supervision

PhD in progress : Nicolas Golse, Apports de la modélisation anatomique et hémodynamique du foie dans l'anticipation, la réalisation et l'enseignement de la chirurgie hépatique, since 10/2016, co-directed by Eric Vibert, Irene Vignon-Clementel, Stephane Cotin

Defended PhD: Chen-Yu Chiang, Transport in biological systems. Monolithic method for fluid-structure interaction, Sorbonne U., 11 January 2019, co-directed by Marc Thiriet, Olivier Pironneau and Toni Sheu (National Taiwan U)

9.2.3. Juries

Irene Vignon-Clementel

- Referee for the PhD defense of Miguel Veira, KCL, London, UK, June 18th
- Jury for research projects (undergraduates), CentraleSupélec, June 4th & Nov 4th & 6th
- Hiring committee for engineer position, U. of Bordeaux, France, May 5th
- Jury member (invited), PhD defense of F. Joly, CHUM, Canada, April 15th
- Referee for the PhD defense of Mathias Braun, U. of Bordeaux, France, April 4th
- President of the jury for the HDR of Paul VanLiedekerke, Sorbonne U., France, March 26th

9.3. Popularization

9.3.1. Interventions

- N Golse (MD)
 - conference at Ecole des Mines, 14th October 2019, "Healthcare simulation"
- Irene Vignon-Clementel
 - High school forum on scientific career, 7th December, Lycee Corneille, La Celle St Cloud
 - Junior high school intervention 'women in engineering', 22nd February, Ville d'Avray
 - High school forum on scientific career, 19th January, Lycee Corneille, La Celle St Cloud
 - High school intervention, 15th January, Blanche de Castille, Le Chesnay

9.3.2. Internal action

Interviews of Irene Vignon-Clementel by journalist for Inria, 13th March and 25th Nov (see Inria website articles)

RITS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Reviewer

Raoul de Charette: *BMVC 2019, CVPR 2019, ICCV 2019, AAAI 2019, IEEE ITSC 2019, IEEE IV 2019.*

Jean-Marc Lasgouttes: *IEEE ITSC 2019, ICVES 2019.*

Fawzi Nashashibi : *IEEE ICRA 2019, IEEE IROS 2019, IEEE IV 2019, IEEE ITSC 2019, IEEE VTC 2018, IEEE ICVES 2019.*

Anne Verroust-Blondet: *IEEE ICRA 2020, IEEE IV 2019, IEEE ITSC 2019, ICVES 2019.*

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

Guy Fayolle: associate editor of the journal *Markov Processes and Related Fields.*

Fawzi Nashashibi: associate editor of the journal *IEEE Transactions on Intelligent Vehicles*, associate editor of the journal *IEEE Transactions on Intelligent Transportation Systems.*

Fawzi Nashashibi: currently Guest Editor of the *IEEE Sensors* journal (ISSN 1424-8220), Special Issue on “The Application of Sensors in Autonomous Vehicles”.

Anne Verroust-Blondet: associate editor of the journal *The Visual Computer.*

9.1.2.2. Reviewer - Reviewing Activities

Raoul de Charette: *IEEE Transactions on Intelligent Transportation Systems*

Guy Fayolle: *AAP, MPRF, PTRF, QUESTA, European Journal of Combinatorics, JSP, Physica A, Springer Science.*

Jean-Marc Lasgouttes: *IEEE Transactions on Intelligent Transportation Systems, Probability in the Engineering and Informational Sciences.*

Fawzi Nashashibi: *IEEE Transactions on Intelligent Transportation Systems, IEEE Transactions on Intelligent Vehicles, Transportation Research Part C, IEEE ACCESS.*

Anne Verroust-Blondet: *IEEE Transactions on Intelligent Vehicles, The Visual Computer.*

9.1.3. Invited Talks

Raoul de Charette: *Sparse and dense data in computer vision*, Université Laval, Québec, Canada, July 5th 2019.

Guy Fayolle was invited participant at the conference *Transient Transcendence in Transylvania*, Braov, Romania, May 13–17, 2019.

G rard Le Lann: *Automated Driving: Ethical/Moral Quandaries*, invitation by Comit  d’ thique du CNRS (COMETS), Paris, 26 February 2019.

G rard Le Lann: *Ethical and Privacy Issues in Autonomic Vehicular Networks*, invited talk, Symposium on Networking Research Topics: Past, Present and Future inspired by Mario Gerla, Politecnico di Milano (Italy), 3 June 2019.

G rard Le Lann: *Une mise en perspective - Qu’avons-nous appris de l’aventure Arpanet/Internet qui puisse servir aujourd’hui ?*, Colloque SIF Les 50 ans d’Internet, CNAM, Paris, 29 October 2019.

Fawzi Nashashibi: *Connected autonomous vehicles: objectives and challenges*, invited plenary talk, at the JNRR 2019 (national days on robotics research), Vittel, October 18, 2019.

Fawzi Nashashibi: *Connected Autonomous Vehicles: selected challenges*, Keynote speaker, at the IEEE ITSC 2019 conference - workshop, Auckland (New Zealand), October 27, 2019.

Fawzi Nashashibi: *The role of the intelligent infrastructure in the development and deployment of autonomous vehicles*, Keynote speaker, at the SMIV international workshop, organised by Vedecom institute, Paris, November 13, 2019.

Fawzi Nashashibi: *Connected Autonomous Vehicles: next challenges*, Keynote speaker, at the IEEE CIS-RAM conference, Bangkok (Thailand), November 18-20, 2019.

9.1.4. Scientific Expertise

Guy Fayolle is scientific advisor and associate researcher at the *Robotics Laboratory of Mines ParisTech*. He is also collaborating member of the research-team SPECFUN at Inria-Saclay.

Jean-Marc Lasgouttes is member of the Inria *Commission d'Evaluation* of Inria and of the *Conseil Académique* of Université Paris-Saclay.

Gérard Le Lann: Contribution to White Book on Cybersecurity: current challenges and Inria's research directions, Section 6.3.2 on Robotics and connected autonomous vehicles, February 2019.

Fawzi Nashashibi is an associate researcher at the *Robotics Laboratory, Mines ParisTech*. He is an evaluator/reviewer of European H2020 projects.

Anne Verroust-Blondet was a member of the CRCN Recruiting Commission of the CRI Paris in 2019.

9.1.5. Research Administration

Jean-Marc Lasgouttes is a member of the *Comité Technique Inria* and of the *Comité Local Hygiène Sécurité et Conditions de Travail* of Inria Paris.

Guy Fayolle is a member of the working group IFIP WG 7.3.

Fawzi Nashashibi is a member of the international Automated Highway Board Committee of the TRB (AHB30).

He is a member of the Board of Governors of the VEDECOM Institute representing Inria and of the Board of Governors of MOV'EO Competitiveness cluster representing Inria. He is also member of the DAS-SMI of MOV'EO cluster.

Anne Verroust-Blondet is the scientific correspondent of the European affairs and of the International Partnerships for Inria Paris. She was a member of the COST-GTRI committee at Inria (Committee in charge of the evaluation of international projects) and a member of the "emplois scientifiques" committee of Inria Paris in 2019.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Primary school: Raoul de Charette, "Introduction à l'intelligence artificielle", 10h, -, Puck et Ribambelle, Castelnau-le-Lez, France.

Licence: Fawzi Nashashibi, "Programmation avancée", 84h, L1, Université Paris-8 Saint-Denis, France.

Engineering, 2nd year: Fawzi Nashashibi, "Image synthesis and 3D Infographics", 12h, M2, INT Télécom SudParis, IMA4503 "Virtual and augmented reality for autonomy".

Master: Jean-Marc Lasgouttes, "Analyse de données", 54h, second year of Magistère de Finance (M1), University Paris 1 Panthéon Sorbonne, France.

Master: Jean-Marc Lasgouttes, “Analyse de données”, 52.5h, Master 1 SIC APP, University Paris 1 Panthéon Sorbonne, France.

Master: Kaouther Messaoud, "Machine learning 1", 22h (TP), M1, ESIEE, Paris.

Master: Fawzi Nashashibi, “Obstacle detection and Multisensor Fusion”, 4h, M2, INSA de Rouen.

Master: Fawzi Nashashibi, “Perception and Image processing for Mobile Autonomous Systems”, 12h, M2, University of Evry.

Mastere : Raoul de Charette, “Scene Understanding with Computer Vision”, 20h, post master, Mines ParisTech, France.

Doctorat: Jean-Marc Lasgouttes, “Introduction au Boosting”, 10.5h, Mastère Spécialisé “Expert en sciences des données”, INSA-Rouen, France.

9.2.2. Supervision

PhD: Pierre de Beaucorps, “Planification de trajectoire dans un environnement peu contraint et fortement dynamique”, UPMC Sorbonne University, July 2019, supervisor: Anne Verroust-Blondet, co-supervisor: Fawzi Nashashibi.

PhD: Danut Ovidiu Pop, "Multi-Task Cross-Modality Deep Learning for Pedestrian Risk Estimation", INSA Rouen, November 2016, supervisor: Abdelaziz Bensrhair, co-supervisor: Fawzi Nashashibi.

PhD in progress: Farouk Ghallabi, “Environment modeling and simultaneous localization of a mobile vehicle on motorways: a multi-sensor approach”, Mines ParisTech, PSL Research University, October 2016, supervisor: Fawzi Nashashibi.

PhD in progress: Maximilian Jaritz, “Perception multi-capteur pour la conduite autonome grâce à l’apprentissage profond”, Mines ParisTech, PSL Research University, January 2017, supervisor: Fawzi Nashashibi, co-supervisor: Raoul de Charette.

PhD in progress: Imane Matout, “Estimation de l’intention des véhicules pour la prise de décision et le contrôle sans faille en navigation autonome”, Mines ParisTech, PSL Research University, December 2017, supervisor: Fawzi Nashashibi, co-supervisor: Vicente Milanés.

PhD in progress: Kaouther Messaoud, “Détermination des manoeuvres et des intentions des véhicules avoisinant un véhicule autonome”, UPMC Sorbonne University, October 2017, supervisor: Anne Verroust-Blondet, co-supervisors: Fawzi Nashashibi, Itheri Yahiaoui.

PhD in progress: Fabio Pizzati, “Style transfer and domain adaptation for semantic segmentation”, PSL Research University and University of Bologna, November 2019, co-supervisors: Andrea Prati, Stefano Selleri, Fawzi Nashashibi and Raoul de Charette.

PhD in progress: Renaud Poncelet, “Navigation autonome en présence d’obstacles fortement dynamiques au mouvement incertain”, UPMC Sorbonne University, September 2018, supervisor: Anne Verroust-Blondet, co-supervisor: Fawzi Nashashibi.

PhD in progress: Luis Roldao, “Modélisation 3D de l’environnement et de la manoeuvrabilité d’un véhicule”, UPMC Sorbonne University, October 2017, supervisor: Anne Verroust-Blondet, co-supervisor: Raoul de Charette.

9.2.3. Juries

Fawzi Nashashibi was a reviewer of the HDR thesis of Mr. Romuald Aufrère - *Systèmes de perception bayésienne pour la robotique mobile : application à la localisation de véhicules*, Université Clermont-Ferrand, July 10, 2019.

Fawzi Nashashibi was a reviewer of the PhD thesis of Mrs. Laurène Claussmann - *Motion Planning for Autonomous Highway Driving: A Unified Architecture for Decision-Maker and Trajectory Generator*, Université Versailles, September 27, 2019.

Fawzi Nashashibi was a reviewer of the PhD thesis of Mr. Mohamed-Taha Boudali - *Contributions au guidage d'un véhicule autonome en situations non conventionnelles de conduite*, Université Mulhouse, September 25, 2019.

Fawzi Nashashibi was a jury member of the PhD thesis of Mr. David Pérez Morales - *Multi-sensor-based control in Intelligent Parking applications*, Université Nantes, December 6, 2019.

Fawzi Nashashibi was a reviewer of the PhD thesis of Mr. Mathieu Barbier - *Crossing of Road Intersections: Decision-Making Under Uncertainty for Autonomous Vehicles*, Université Grenoble Alpes, December 11, 2019.

Anne Verroust-Blondet was a jury member of the PhD thesis of Mr. David Sierra Gonzalez - *Towards Human-Like Prediction and Decision-Making for Automated Vehicles in Highway Scenarios*, Université Grenoble Alpes, 1 April 2019.

Anne Verroust-Blondet was a reviewer of the PhD thesis of Mr. Hernan Gonzalez - *Complex Dynamic scene analysis through multi-body motion segmentation - application to intelligent vehicles*, Université Paris-Saclay, 13 December 2019.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- Fawzi Nashashibi was audited by a joint committee from the Parliament-Senat and cited in a OPECST report titled “*End of thermal vehicles in 2040: what realistic scenarios*”. Authors: Mrs. Huguette Tiegna (Parliament Deputy, Vice President) and Mr. Stéphane Piednoir (Senator). ISSN: 1249-3872.
- Participation of several team members to PAC V2X “Forum des acteurs” through oral scientific presentations - Paris, September 11, 2019.
- Participation of several team members in oral presentations and demonstrations with real mobile platforms during the *Journées du Patrimoine (Heritage Days)*, Rocquencourt, September 21, 2019.

9.3.2. Articles and contents

Fawzi Nashashibi was interviewed by Eric Gibory in *Le Monde*⁰: “Flottes d’entreprise : “De nouveaux services pour la voiture connectée vont apparaître avec la 5G””, October 24th 2019.

Fawzi Nashashibi was interviewed by Muriel Jaoën in *Les Echos*⁰: “Le véhicule autonome en site ouvert ? Pas avant 2050”, February 8th 2019.

9.3.3. Interventions

Raoul de Charette: *What is the limitation of artificial intelligence ?*, Arbre des Connaissances, Paris, France, February 12th 2019.

Raoul de Charette: *Dangers de l’intelligence artificielle ?*, Crégy-lès-Meaux, France, March 2019.

Raoul de Charette: *Qu’est-ce que l’intelligence artificielle ?*, Oissery, France, May 28th 2019.

Raoul de Charette: *Intelligence artificielle*, Arbre des Connaissances, Paris, France, June 17th 2019.

Fawzi Nashashibi: panelist, round table on the “Vehicle of the Future”, Maison de la Recherche, Paris, April 2019.

Fawzi Nashashibi: panelist, round table on the “Autonomous Vehicle”, Centrales-Supélec, Paris, September 16, 2019.

⁰(https://www.lemonde.fr/economie/article/2019/10/24/flottes-d-entreprise-de-nouveaux-services-pour-la-voiture-connectee-vont-apparaître-avec-la-5g_6016755_3234.html)

⁰(<https://www.lesechos.fr/tech-medias/intelligence-artificielle/fawzi-nashashibi-le-vehicule-autonome-en-site-ouvert-pas-avant-2050-963047>)

SECRET Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- FSE 2020, March 2020, Athens, Greece: C. Boura, general chair ; G. Leurent, program co-chair
- PQCrypto 2020, April 15 - April 17, 2020, Paris, France: N. Sendrier, general co-chair ; J.P. Tillich, program co-chair
- Dagstuhl seminar on Quantum Cryptanalysis 2019, October 13-18, 2019, Dagstuhl, Germany: M. Naya-Plasencia co-organizer.

9.1.1.2. Member of the Organizing Committees

- FSE 2019: March 25-28, 2019, Paris, France: Gaëtan Leurent.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Co-editor-in-chief of *IACR Transactions on Symmetric Cryptology* starting from 2019: Gaëtan Leurent.
- Co-chair of the Program Committee of *Eurocrypt 2020*, Zagreb, Croatia, May 2020: Anne Canteaut
- Co-chair of the Program Committee of *FSE 2020*, Athens, Greece, March 2020: Gaëtan Leurent.
- Co-chair of the Program Committee of *WCC 2019*, March-April 2019, St Jacut-de-la-Mer, France: A. Canteaut
- Chair of the Program Committee of *QCrypt 2019*, August 26-30 2019, Montreal, Canada: A. Leverrier

9.1.2.2. Member of the Conference Program Committees

- CT-RSA 2019: March 4-8, 2019, San Francisco, USA (L. Perrin);
- FSE 2019: March 25-28, 2019, Paris, France (C. Boura, A. Canteaut, G. Leurent, M. Naya-Plasencia)
- WCC 2019: March 31 - April 5, 2019, St Jacut-de-la-Mer, France, (A. Canteaut chair, P. Charpin, N. Sendrier, J.P. Tillich);
- PQCrypto 2019: May 8-10, 2019, Chongqing, China, (M. Naya-Plasencia, N. Sendrier, J.P. Tillich);
- CBC 2019: May 18-19, 2019, Darmstadt, Germany, (J.-P. Tillich);
- TQC 2019: June 3-9, 2019, University of Maryland, USA, (A. Chailloux);
- ISIT 2019: July 7-12, 2019, Paris, France, (A. Leverrier, J.-P. Tillich);
- CHES 2019: August 25-28, 2019, Atlanta, USA, (G. Leurent);
- PQC: Perspectives on Quantum Computing, NISQ and beyond: November 20, 2019, Paris, France (A. Leverrier);
- SPACE 2019: December 3-7, 2019, Gandhinagar, India (L. Perrin);
- FSE 2020: March 22-26, 2020, Athens, Greece, (C. Boura, A. Canteaut, G. Leurent co-chair, L. Perrin)
- PQCrypto 2020: April 15-17, 2020, Paris, France (A. Chailloux, M. Naya-Plasencia, N. Sendrier, J.P. Tillich);

- CBCrypto 2020: May 9-10, 2020, Zagreb, Croatia, (J.-P. Tillich);
- Eurocrypt 2020: May 10-14, 2020, Zagreb, Croatia, (A. Canteaut co-chair, M. Naya-Plasencia);
- ISIT 2020: June 21-26, 2020, Los Angeles, USA, (J.-P. Tillich).

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- *Advances in Mathematics of Communications*, associate editors: N. Sendrier and J.P. Tillich
- *Applicable Algebra in Engineering, Communication and Computing*, associate editor: A. Canteaut.
- *Designs, Codes and Cryptography*, associate editor: P. Charpin.
- *Finite Fields and Applications*, associate editors: A. Canteaut, P. Charpin.
- *IACR Transactions on Symmetric Cryptology*, associate editors: C. Boura, A. Canteaut, G. Leurent (co-editor in chief), M. Naya-Plasencia, L. Perrin.
- *IACR Transactions on Cryptographic Hardware and Embedded Systems*, associate editor: G. Leurent.
- *Quantum (the open journal for quantum science)*, associate editor: A. Leverrier.
- *IEEE Transactions on Information Theory*, associate editor: A. Canteaut.

9.1.4. Invited Talks

- P. Charpin, *Crooked and weakly crooked functions*, Finite Fields and Applications - Fq14, Vancouver, Canada, June 3-7, 2019.
- M. Naya-Plasencia, *Preparing Symmetric Cryptography for the Quantum World*, FSE 2019, Paris, France, 24-28 March, 2019.

9.1.5. Leadership within the Scientific Community

- A. Canteaut serves as a chair of the steering committee of *Fast Software Encryption (FSE)*, M. Naya-Plasencia and G. Leurent also serve on the committee.
- N. Sendrier serves on the steering committee of *Post-quantum cryptography (PQCrypto)*.
- P. Charpin, N. Sendrier and JP Tillich serve on the steering committee of the WCC conference series.

9.1.6. Research Administration

- A. Canteaut served as Head of Science of the Inria Paris research center until August 2019.
- A. Canteaut serves as Head of *Inria Evaluation Committee* since September 2019.
- P. Charpin serves on the *Comité Parité* at Inria.
- G. Leurent and M. Naya-Plasencia are members of *Inria Paris CSD Committee* (Comité de suivi doctoral).
- M. Naya-Plasencia serves on the *Inria Evaluation Committee* since September 2019.
- A. Leverrier serves on the steering committee of the *Domaine D'Intérêt Majeur SIRTEQ* (Quantum Technologies in IdF).

9.1.7. Committees for the selection of professors, assistant professors and researchers

- 2019 Jury Inria Research Positions (ARP/SRP) (M. Naya-Plasencia);
- 2019 Jury d'admission Inria DR2, (M. Naya-Plasencia);
- 2019 Jury d'admissibilité Inria DR2, (A. Canteaut);
- 2019 Jury d'admissibilité Inria CRCN national (A. Canteaut);
- Committee for the nomination to a permanent position, Radboud University Nijmegen, Netherlands (M. Naya-Plasencia).
- Committee for a professorship in cryptography, TU Graz, Austria (A. Canteaut)

- Reviewer for a promotion to professorship, ISI Kolkata, India (A. Canteaut)
- Committee for 3 assistant professor positions in computer science at Université de Paris: A. Leverrier

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: A. Canteaut, *Error-correcting codes and applications to cryptology*, 12 hours, M2, University Paris-Diderot (MPRI), France;

Master: A. Chailloux, *Quantum information*, 12 hours, M2, University Paris-Diderot (MPRI), France;

Master: A. Chailloux, *Quantum algorithms*, 4 hours, M2, Ecole Normale Supérieure de Lyon, France;

Master: A. Leverrier, *Quantum information and quantum cryptography*, 12 hours, M2, University Paris-Diderot (MPRI), France;

Master: L. Perrin, *Application Web et Sécurité*, 24 hours, M1, UVSQ, France;

Bachelor: L. Perrin, *Cryptographie*, 29 hours, L3, UVSQ, France;

Master: J.-P. Tillich, *Introduction to Information Theory*, 36 hours, M2, Ecole Polytechnique, France;

Master: J.-P. Tillich, *Quantum Information and Applications*, 36 hours, M2, Ecole Polytechnique, France.

The members of the project-team were also invited to give courses at training schools for PhD students and young researchers:

- N. Sendrier, *Code-Based Cryptography*, PQCrypto 2019 Summer School, Chongqing, China, May 6, 2019.

9.2.2. Supervision

PhD: Xavier Bonnetain, *Cryptanalysis of symmetric primitives in the post-quantum world*, Sorbonne Université, November 15, 2019, supervisor: M. Naya Plasencia.

PhD: Thomas Debris, *Quantum algorithms for decoding linear codes*, Sorbonne Université, December 17, 2019, supervisor: JP Tillich.

PhD: Antoine Gropellier, *LDPC codes: constructions and decoding*, Sorbonne Université, November 8, 2019, supervisors: A. Leverrier and O. Fawzi (ENS Lyon)

PhD: Vivien Londe, *Study of quantum LDPC codes*, University of Bordeaux, December 6, 2019, supervisors: G. Zémor (Univ. Bordeaux) and A. Leverrier

PhD in progress: Kevin Carrier, *Presque-collisions et applications au décodage générique et à la reconnaissance de codes correcteurs d'erreurs*, since October 2016, supervisor: N. Sendrier and JP Tillich.

PhD in progress: Matthieu Lequesne, *Attaques par canaux cachés sur les cryptosystèmes à base de codes MDPC quasi-cycliques*, since September 2017, supervisor: N. Sendrier

PhD in progress: André Schrottenloher, *Long-term security of symmetric primitives*, since February 2018 supervisor: M. Naya-Plasencia

PhD in progress: Ferdinand Sibleyras, *Security of modes of operation*, since October 2017, supervisor: G. Leurent and A. Canteaut

PhD in progress: Valentin Vasseur, *Etude du décodage des codes QC-MDPC*, since October 2017, supervisor: N. Sendrier

PhD in progress: Rémi Bricout, *Etude de scénarios non-locaux quantiques à l'aide d'outils de la théorie de l'information quantique*, since September 2017, supervisor: A. Chailloux and A. Leverrier

PhD in progress: Shouvik Ghorai, *Beyond-QKD continuous-variable quantum cryptographic protocols*, since October 2017, supervisors: E. Diamanti (UPMC), A. Leverrier

PhD in progress: Andrea Olivo, *Partir de contraintes relativistes pour faire de la cryptographie quantique*, since November 2017, supervisors: A. Chailloux and F. Grosshans (laboratoire Aimé Cotton).

PhD in progress: Daniel Coggia, *Cryptanalysis techniques for lightweight ciphers*, since September 2018, supervisors: A. Canteaut and C. Boura.

PhD in progress: Simona Etinski, *Quantum algorithms and protocols*, since October 2019, supervisors: A. Chailloux, A. Leverrier and F. Magniez (Université de Paris)

PhD in progress: A. Florez Gutierrez, *Secure Symmetric Primitives and the Post-Quantum World*, since September 2019, supervisor: M. Naya Plasencia

PhD in progress: Lucien Grouès, *Decoding algorithms for quantum LDPC codes*, since October 2019, supervisors: A. Leverrier, O. Fawzi

PhD in progress: Rocco Mora, *Algebraic structures in code-based cryptography*, since October 2019, supervisor: JP Tillich

9.2.3. Juries

- Lorenzo Grassi, *Cryptanalysis of AES-like ciphers and reviving old design ideas for new constructions*, TU Graz, Austria, April 26, 2019, committee: A. Canteaut (reviewer).
- Louiza Khati, *Full Disk Encryption and Beyond*, Université Paris PSL, July 15, 2019, committee: M. Naya-Plasencia (chair).
- T. van Himbeeck, *Quantum Cryptography with Partially Trusted Devices*, Université Libre de Bruxelles, October 18, 2019, committee: A. Leverrier
- A. Alosious, *Higher dimensional topological codes : structural properties and decoders*, Indian Institute of Technology Madras, November, 2019, committee: J.-P. Tillich (reviewer).
- A. Gropellier, *Décodage des codes expenseurs quantiques et application au calcul quantique tolérant aux fautes*, Sorbonne University, November 8, 2019, committee: A. Leverrier (supervisor), J.-P. Tillich.
- Xavier Bonnetain, *Hidden structures and quantum cryptanalysis*, Sorbonne Université, November 15, 2019, committee: A. Chailloux, M. Naya-Plasencia (Supervisor).
- Loïc Ferreira, *Secure Tunnels for Constrained Environments*, Université Bretagne Loire, November 18, 2019, committee: M. Naya-Plasencia.
- O. Fawzi, HdR, *Contributions to quantum information theory*, École Normale Supérieure de Lyon, December 2, committee: J.-P. Tillich (reviewer).
- V. Londe, *Topological Quantum Error-Correcting Codes beyond dimension 2*, Bordeaux University, December 6, 2019, committee: A. Leverrier (supervisor), JP Tillich
- M. Bozzio, *Security and implementation of advanced quantum cryptography: Quantum money - Quantum weak coin flipping*, Université Paris-Saclay, December 10, 2019, committee: A. Leverrier (reviewer)
- Alain Couvreur, HdR, *Codes algébriques et géométriques, applications à la cryptographie et à l'information quantique*; Université Paris-Diderot, December 16, 2020, committee: N. Sendrier (reviewer), J.P. Tillich
- Patrick Lacharme, HdR, *Études en Sécurité Informatique*, Université de Normandie, February 6, 2020, committee: M. Naya-Plasencia (reviewer).

- Thomas Debris, *Cryptographie fondée sur les codes : nouvelles approches pour constructions et preuves ; contribution en cryptanalyse*; Sorbonne Université, December 17, 2019, committee: N. Sendrier, J.P. Tillich (supervisor)

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- **Association Animath:** M. Lequesne serves on the board of Animath.
- M. Lequesne is also member of the scientific committee of the French Tournament of Young Mathematicians: redaction of the problems for the competition, jury member (chair of a jury) ; member of the scientific committee of the International Tournament of Young Mathematicians: redaction of the problems for the competition, jury member (chair of a jury) ; Member of the scientific committee of the Correspondances des Jeunes Mathématicien.ne.s: redaction of the problems for the competition.

9.3.2. Articles and contents

- *La fragilité inattendue du chiffrement symétrique dans le monde post-quantique*, Gaëtan Leurent and Maria Naya-Plasencia, María, Interstices [63]

9.3.3. Education

- **Alkindi cipher challenge:** Several members of the project-team are involved in the cipher challenge for high-school students "concours Alkindi" <http://www.concours-alkindi.fr/>. Mathieu Lequesne serves as a co-organizer of the challenge, preparing the three rounds and the final. Together with C. Boura, he was also involved in the redaction of the exercises.
- Organization of the event "Rendez-vous des Jeunes Mathématiciennes et Informatiennes" at Inria Paris (October 28-29) by M. Lequesne, a 2-day camp for 20 high-school girls interested in mathematics and computer science. C. Boura, A. Canteaut and L. Perrin gave talks at this event.
- **Project Algo'scape with a high school (Lycée Anna Judic, Semur en Auxois):** design of an escape game on cryptography (L. Perrin), visit of 15 students at Inria, May 2019 (A. Canteaut and L. Perrin).

SERENA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

Michel Kern was co-organizer of the **SITRAM19** workshop (Advances in the SIMulation of reactive flow and TRANsport in porous Media), December 2–3, Pau, France.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

Guillaume Enchéry and Martin Vohralík have organized a 1-day workshop **Journée contrat cadre IFP Energies Nouvelles/Inria**.

10.1.2.2. Member of the Conference Program Committees

Alexandre Ern is a member of the Scientific Committee of the European Finite Element Fair (EFEF) and of the European Numerical Mathematics and Advanced Applications Conference (ENUMATH).

Géraldine Pichot is a member of the Scientific Committee of FRAME2020 - FRActured MEDIA: Numerical methods for fluid flow and mechanics, September 21-24, 2020.

Michel Kern and Martin Vohralík were members of the Scientific Committee of the **SimRace 2019** conference.

Michel Kern was a member of the Program Committee of **JCAD2019**, Journées Calcul et Données .

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Alexandre Ern is a member of the editorial boards of **SIAM Journal on Scientific Computing**, **ESAIM Mathematical Modelling and Numerical Analysis**, **IMA Journal of Numerical Analysis**, and **Computational Methods in Applied Mathematics**.

Martin Vohralík is a member of the editorial boards of **SIAM Journal on Numerical Analysis**, **Acta Polytechnica**, and **Applications of Mathematics**.

10.1.3.2. Reviewer - Reviewing Activities

Alexandre Ern and Martin Vohralík served as reviewers for dozens of papers in different journals.

Michel Kern served as reviewer for **BIT**, **Numerical Mathematics**, **Computational Geosciences**, **SIAM Journal on Scientific Computing**, **Applicable Analysis**, and **Journal of Mathematical Study**.

Géraldine Pichot served as reviewer for **Computational Geosciences**.

10.1.4. Invited Talks

Alexandre Ern was invited as one of the two keynote lecturers at the **Workshop on Computational Modeling and Numerical Analysis**, Petropolis, Brésil, Feb 2019.

Michel Kern was invited as one of the keynote speakers at the **HPC TerrSys** fall school, Bonn, Germany, Sep. 2019.

Martin Vohralík was an invited speaker at **GAMM section on Numerical methods of differential equations**, Vienna, Austria, February 2019, **Modern Finite Element Technologies 2019**, Bad Honnef, Germany, July 2019, and **Reliable Methods of Mathematical Modeling**, Vienna, Austria, Sep 2019.

10.1.5. Leadership within the Scientific Community

Alexandre Ern is the coordinator of the Master Mathématiques et applications, Ecole nationale des ponts et chaussées.

Michel Kern is a member of the **SIAM** “Committee on Committees and Appointments”.

Michel Kern is a member of the Scientific Board of **ORAP** (Organisation Associative du Parallélisme).

Michel Kern is a member of the Scientific Advisory Board of GDR CNRS **Groupe Calcul**.

Michel Kern is a member of the steering committee of **Géosciences franciliennes**.

Martin Vohralík is a member of the steering committee of **Summer schools CEA–EDF–Inria**.

Martin Vohralík is in charge of the topic “Numerical schemes, mesh generation algorithms, and error control” in the **ANDRA, BRGM, CEA, EDF, IFP Energies Nouvelles**, and **Total** working group on *High-Performance Numerical Simulation in the Geosciences* (identification of common challenges and collaboration opportunities).

10.1.6. Research Administration

François Clément is a member of the *Comité local d’hygiène, de sécurité et des conditions de travail* of the Inria Research Center of Paris.

Michel Kern is a member of the *Comité de Centre* of the Inria Research Center of Paris.

Martin Vohralík is a member of the Inria Paris *Committee on scientific positions* (evaluation of applications for Ph.D. theses (CORDI-S), post-docs, and délégations).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : Alexandre Ern, Numerical analysis, 77h, L3/M1, Ecole Polytechnique, France.

Licence : Alexandre Ern, Optimal control, 10h, L3, Ecole nationale des ponts et chaussées, France.

Master : Alexandre Ern, Discontinuous Galerkin methods, 20h, M2, Sorbonne University, France.

Master: Michel Kern, Models and numerical methods for subsurface flow, 30h, M2, Université Paris Saclay, France

Master: Michel Kern, Inverse Problems, 24h, M1, Mines-ParisTech, France

Master: Michel Kern, Introduction to Partial Differential Equations, 30h, & Advanced numerical analysis, 30h, M1, Institut Galilée, Université Paris-Nord, France.

10.2.2. Supervision

PhD defended on June 3, 2019: Jad Dabaghi, A posteriori error estimates and adaptive stopping criteria for formulations with complementarity constraints, Martin Vohralík and Vincent Martin.

PhD defended on March 22, 2019: Patrik Daniel, Adaptive *hp*-finite elements with guaranteed error contraction and inexact multilevel solvers, Martin Vohralík and Alexandre Ern.

PhD in progress: Joëlle Ferzly, A posteriori error estimates and adaptivity for complementarity problems, started 15 October 2019, Martin Vohralík.

PhD in progress: Frédéric Marazzato, Discrete element methods for fracture and fragmentation, started 01 October 2016, Alexandre Ern.

PhD in progress: Riccardo Milani, Compatible Discrete Operator schemes for Navier–Stokes equations, started 01 October 2017, Alexandre Ern.

PhD in progress: Ani Miraci, Robust a posteriori error control and adaptivity with inexact solvers, started 01 October 2017, Martin Vohralík and Alexandre Ern.

PhD in progress: Idrissa Niakh, Reduced models for variational inequalities in computational mechanics, started 01 November 2019, Alexandre Ern and Virginie Ehrlacher (ENPC).

PhD in progress: Stefano Piccardo, High-fidelity simulation of droplets in complex shear flows, started 01 October 2019, Alexandre Ern and Antonio Huerta (UPC).

PhD defended on October 22, 2019: Nicolas Pignet, Hybrid high-order methods for nonlinear solid mechanics, Alexandre Ern.

10.2.3. Juries

Alexandre Ern, Examiner and Chairman, PhD V. Mamet, INP Grenoble, Jan 2019.

Alexandre Ern, Referee, PhD A. Rupp, Erlangen FA University, Mar 2019.

Alexandre Ern, Examiner, HDR C. Millet, University Paris-Sud, Mar 2019.

Michel Kern, Examiner, PhD Daniel Salas, Université de Strasbourg, Sep. 2019.

Michel Kern, Examiner, PhD Kevish Napal, Université Paris Saclay, Dec. 2019.

Géraldine Pichot, Referee, PhD Fabio Vicini, Politecnico di Torino, April 2019.

Martin Vohralfk, Examiner and Chairman, PhD Hoang Phuong Thai, ENS Paris-Saclay, Jun 2019.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- + Géraldine Pichot is a member of the editorial committee of Interstices since November 2019.

SIERRA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

- Adrien Taylor, ICCOPT session organizer: *Performance Estimation of First-Order Methods* (with F. Glineur), *Splitting Methods and Applications (Part I)* (with P. Giselsson and E. Ryu), *Splitting Methods and Applications (Part III)* (with P. Giselsson and E. Ryu).

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- Alexandre d'Aspremont, co-organizer, Les Houches Workshop on Optimization and Machine Learning, March 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Senior Area Chair, NeurIPS conference 2019 (Francis Bach).

10.1.2.2. Reviewer

Most of the team referees for the major machine learning conferences such as NIPS, AISTATS, ICML.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Alexandre d'Aspremont: SIAM Journal on Optimization, Associate Editor
- Alexandre d'Aspremont: SIAM Journal on the Mathematics of Data Science, Associate Editor
- Alexandre d'Aspremont: Mathematical Programming B, Associate Editor
- Alexandre d'Aspremont: Mathematics of Operations Research, Associate Editor
- Francis Bach: Journal of Machine Learning Research, co-editor-in-chief
- Francis Bach: Information and Inference, Associate Editor
- Francis Bach: Electronic Journal of Statistics, Associate Editor.
- Francis Bach: Mathematical Programming, Associate Editor
- Francis Bach: Foundations of Computational Mathematics, Associate Editor

10.1.3.2. Reviewer - Reviewing Activities

1. Adrien Taylor, reviewer for Automatica.
2. Adrien Taylor, reviewer for SIAM Journal on Numerical Analysis (SINUM).
3. Adrien Taylor, reviewer for SIAM Journal on Optimization (SIOPT).
4. Adrien Taylor, reviewer for Mathematical Programming (MPA).
5. Adrien Taylor, reviewer for International Conference on Machine Learning 2019 (ICML19).

10.1.4. Invited Talks

- Alexandre d'Aspremont, ICCOPT 2019, Berlin, August 2019.
- Alexandre d'Aspremont, CIMI Workshop, Toulouse, October 2019.
- Alexandre d'Aspremont, France-Germany-Swiss Optimization conference, Nice, September 2019.
- Alexandre d'Aspremont, BIRS Workshop, Oaxaca, Oct. 2019.
- Alexandre d'Aspremont, SAMPTA, Bordeaux, July 2019.

- Francis Bach, Optimization workshop, Les Houches, March 2019.
- Francis Bach, Oberwolfach, Germany, May 2019.
- Francis Bach, AI Global summit, Geneva, Switzerland, May 2019.
- Francis Bach, ETH Data science seminar, Zurich, Switzerland, June 2019.
- Francis Bach, ETH Imaging workshop, Zurich, Switzerland, June 2019.
- Francis BACH, ICIAM invited session, Valencia, Spain, July 2019.
- Francis Bach, Workshop on covariance operators, Germany, Berlin, September 2019.
- Francis Bach, GAMM Workshop COMinDS2019, Berlin, Germany, October 2019.
- Francis Bach, DIMS workshop, Leipzig, Germany, November 2019.
- Francis Bach, Conference on Decision and Control, Nice, December 2019.
- Adrien Taylor, SPOT optimization seminar, Toulouse, February 2019.
- Adrien Taylor, Optimization workshop, Les Houches, March 2019.
- Adrien Taylor, CWI Network & Optimization Seminar, Amsterdam, April 2019.
- Adrien Taylor, Summer school on Optimization (MIPT & HSE), Moscow, June 2019.
- Adrien Taylor, ICCOPT 2019, Berlin, August 2019.
- Alessandro Rudi, *Recent developments on kernel methods*, RKM 2019 (Sept. 2019, London, UK)
- Alessandro Rudi, *Data, Learning and Inference meeting*, DALI 2019 (Sept. 2019, San Sebastian, Spain)
- Alessandro Rudi, *32nd European Meeting of Statisticians*, EMS 2019 (July 2019, Palermo, Italy)
- Alessandro Rudi, *Applied Inverse Problems Conference*, AIP 2019 (July 2019, Grenoble, France)
- Alessandro Rudi, *Imaging and Machine Learning Conference* (April 2019, Paris, France)
- Alessandro Rudi, *Seminar on the Mathematics of Imaging* (March 2019, Paris, France)

10.1.5. Scientific Expertise

- Alexandre d'Aspremont. Conseil scientifique, Vivienne Investissement.

10.1.6. Research Administration

- Alexandre d'Aspremont. Reponsable scientifique, IRIS PSL, "Sciences des données, données de la science".
- Francis Bach, Deputy Scientific Delegate for Inria Paris research center, member of the Inria Evaluation Committee.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Alexandre d'Aspremont, Optimisation Combinatoire et Convexe, avec Zhentao Li, (2015-Present) cours magistraux 30h, Master M1, ENS Paris.

Master: Alexandre d'Aspremont, Optimisation convexe: modélisation, algorithmes et applications cours magistraux 21h (2011-Present), Master M2 MVA, ENS PS.

Summer school: Francis Bach, optimization for machine learning, 12 heures, AIMS Master, Kigali, Rwanda

Summer school: Francis Bach, optimization for machine learning, 4 heures, D3S summer school, Ecole Polytechnique.

Master : Francis Bach, Optimisation et apprentissage statistique, 20h, Master M2 (Mathématiques de l'aléatoire), Université Paris-Sud, France.

Master: Pierre Gaillard, Alessandro Rudi, Introduction to Machine Learning, 52h, L3, ENS, Paris.

10.2.2. Supervision

PhD in progress : Thomas Kerdreux, New Complexity Bounds for Frank Wolfe, 2017, Alexandre d'Aspremont

PhD in progress : Radu - Dragomir Alexandru, Bregman Gradient Methods, 2018, Alexandre d'Aspremont

PhD in progress : Mathieu Barré, Accelerated Polyak Methods, 2018, Alexandre d'Aspremont

PhD in progress : Grégoire Mialon, Sample Selection Methods, 2018, Alexandre d'Aspremont

PhD in progress : Raphaël Berthier, started September 2017, supervised by Francis Bach and Pierre Gaillard.

PhD in progress: Loucas Pillaud-Vivien, supervised by Francis Bach and Alessandro Rudi.

PhD in progress: Alexandre Défossez, supervised by Francis Bach and Léon Bottou (Facebook AI Research).

PhD in progress: Alex Nowak-Vila, supervised by Francis Bach and Alessandro Rudi.

PhD in progress: Ulysse Marteau Ferey, supervised by Francis Bach and Alessandro Rudi.

PhD in progress: Vivien Cabannes, supervised by Francis Bach and Alessandro Rudi.

PhD in progress: Eloise Berthier, supervised by Francis Bach.

PhD in progress: Theo Ryffel, supervised by Francis Bach and David Pointcheval.

PhD in progress: Margaux Brégère, supervised by Pierre Gaillard and Gilles Stoltz (Université Paris-Sud).

PhD in progress: Rémi Jezequel, supervised by Pierre Gaillard and Alessandro Rudi.

PhD defended: Dmitry Babichev, co-advised by Francis Bach and Anatoly Judistky, defended February 22 2019

PhD defended: Tatiana Shpakova, advised by Francis Bach, defended February 21 2019

10.2.3. Juries

- HdR Pierre Weiss, IMT Toulouse, September 2019 (Alexandre d'Aspremont).
- HDR Rémi Flamary, Université de Nice, November 2019 (Francis Bach).

10.3. Popularization

- Participation to "Fête de la Science" (with the Apprenti Illustrateur).

VALDA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Camille Bourgaux, organizer of the yearly meeting of the national working group on *Automata, Logic, Games, and Algebra* (ALGA, GDR IM) in 2019
- Leonid Libkin was appointed general chair of PODS
- Luc Segoufin, chair of the steering committee of the conference series *Highlights of Logic, Games and Automata*
- Luc Segoufin and Pierre Senellart, co-organizers of École de Printemps en Informatique Théorique (EPIT) 2019
- Pierre Senellart, co-organizer and chief judge of the ICPC (International Collegiate Programming Contest) Southwestern Europe 2019-2020 competition

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Leonid Libkin, LICS 2021 (in 2019: constitution of the program committee)

10.1.2.2. Member of the Conference Program Committees

- Camille Bourgaux, IJCAI 2019, AAAI 2020, ECAI 2020
- Olivier Cappé, ALT 2019
- Leonid Libkin, IJCAI 2019, AAAI 2020, ECAI 2020, FOSSACS 2020, ICDT 2020
- Pierre Senellart, SUM 2019, PODS 2019, STACS 2020
- Michaël Thomazo, IJCAI 2019

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Olivier Cappé, *Annals of the Institute of Statistical Mathematics*
- Leonid Libkin, *Acta Informatica*
- Leonid Libkin, *Bulletin of Symbolic Logic*
- Leonid Libkin, *Journal of Applied Logic*
- Leonid Libkin, *SN Computer Science*

10.1.3.2. Reviewer - Reviewing Activities

- Pierre Senellart, *Future Generation Computer Systems*

10.1.4. Invited Talks

- Leonid Libkin, keynote at BDA 2019
- Pierre Senellart, invited talk at Singaporean-French workshop on Artificial Intelligence (SinFra), Singapore
- Pierre Senellart, invited lecture at *Reasoning Web* summer school, Bolzano, Italy

10.1.5. Leadership within the Scientific Community

- Serge Abiteboul is a member of the French Academy of Sciences, of the Academia Europaea, of the scientific council of the Société Informatique de France, and an ACM Fellow.
- Leonid Libkin is a Fellow of the Royal Society of Edinburgh, a member of the Academia Europaea, of the UK Computing research committee, and an ACM Fellow.
- Pierre Senellart is a member of the steering committee of BDA, the French scientific community on data management.

10.1.6. Scientific Expertise

- Pierre Senellart has performed a confidential audit of a company for the French government (*direction interministérielle du numérique et du système d'information et de communication de l'État*)
- Pierre Senellart, ANR

10.1.7. Research Administration

- Olivier Cappé is a scientific deputy director of CNRS division of Information Sciences and Technologies (INS2I).
- Luc Segoufin is a member of the CNHSCT of Inria.
- Pierre Senellart is a member of the board of section 6 of the National Committee for Scientific Research.
- Pierre Senellart is deputy director of the DI ENS laboratory, joint between ENS, CNRS, and Inria.
- Pierre Senellart is a member of the board of the DIM RFSI (Réseau Francilien en Sciences Informatiques).
- Pierre Senellart was a member of the scientific council of PGMO (Programme Gaspard Monge) until mid-2019.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: Serge Abiteboul, *Scientific reading group*, 15 heqTD, L3, École normale supérieure

Licence: Pierre Senellart, Nathan Grosshans, Michaël Thomazo, *Databases*, 74 heqTD, L3, École normale supérieure

Licence: Pierre Senellart, *Algorithms*, 18 heqTD, L3, École normale supérieure

Licence: Nathan Grosshans, *Formal languages*, 22 heqTD, L3, Télécom ParisTech

Master: Pierre Senellart, *Web data management*, 36 heqTD, M2, MPRI

Pierre Senellart has various teaching responsibilities (L3 internships, M1 projects, M2 administration, entrance competition) at ENS. Nathan Grosshans is the secretary of the entrance competition at ENS for computer science. Most members of the group are also involved in tutoring ENS students, advising them on their curriculum, their internships, etc. They are also occasionally involved with reviewing internship reports, supervising student projects, etc.

10.2.2. Supervision

PhD: Karima Rafes, *Le Linked Data à l'université : la plateforme LinkedWiki*, Université Paris-Saclay, 25 January 2019, Serge Abiteboul & Sarah Cohen-Boulakia

PhD in progress: Juliette Achddou, *Application of reinforcement learning strategies to the context of Real-Time Bidding*, started in September 2018, Olivier Cappé & Aurélien Garivier

PhD in progress: Julien Grange, *Graph properties: order and arithmetic in predicate logics*, started in September 2017, Luc Segoufin

PhD in progress: Yann Ramusat, *Provenance-based routing in probabilistic graphs*, started in September 2018, Silviu Maniu & Pierre Senellart

PhD in progress: Yoan Russac, *Sequential methods for robust decision making*, started in December 2018, Olivier Cappé

10.2.3. Juries

- HdR Paolo Papotti, April 2019, Université de Nice – Sophia-Antipolis, Pierre Senellart (reviewer)
- PhD Ugo Comignani, September 2019, Université Claude Bernard Lyon 1, Pierre Senellart (reviewer)

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Serge Abiteboul is the president of the strategic committee of the Blaise Pascal foundation for scientific mediation.

Pierre SENELLART is a research fellow within the CERRE (Centre on Regulation in Europe), a European think tank that produces policy papers and organize events about the regulation of network industries. He contributes in particular to reflections on the use of artificial intelligence techniques and on the interoperability of software platforms.

10.3.2. Articles and contents

Serge Abiteboul writes regular columns on popularization of computer science in *La Recherche* and *Le Monde (Économie)*. He is a founding editor of the *binaire* blog for popularizing computer science. See <https://www.lemonde.fr/blog/binaire/>.

WHISPER Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

Gilles Muller is the elected representative member of the system community in the steering committee of the COMPAS conference and also the head of the committee.

10.1.1.2. Member of the Organizing Committees

Gilles Muller was one the co-organizers of the 10th PLOS Workshop that was associated with SOSP.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

Julia Lawall was program chair of the 34th IEEE/ACM International Conference on Automated Software Engineering (ASE 2019) with Darko Marinov (University of Illinois).

10.1.2.2. Member of the Conference Program Committees

- Julia Lawall: ICSE 2020 New Ideas and Emerging Results, 2019 USENIX Annual Technical Conference (USENIX ATC 2019, ERC), Innovations in Software Engineering Conference (ISEC 2020), The 18th Belgium-Netherlands Software Evolution, Workshop (BENEVOL 2019), 45th International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM 2019), ACM SIGPLAN Workshop on Partial Evaluation and Program Manipulation (PEPM)
- Gilles Muller, Usenix ATC 2019, SOSP 2019, Supercomputing - system track 2019
- Pierre-Évariste Dagand: ICFP 2019, PLOS 2019

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Julia Lawall: Science of Computer Programming

10.1.3.2. Reviewer - Reviewing Activities

- Julia Lawall: IEEE Transactions on Software Engineering
- Pierre-Évariste Dagand: Journal of Functional Programming

10.1.4. Invited Talks

- Julia Lawall: Automation in the Maintenance of the Linux Kernel The Coccinelle Experience. Collège de France, February 6.
- Julia Lawall: Coccinelle: 10 Years of Automated Evolution in the Linux Kernel, keynote Linaro Connect conference, September 27.
- Julia Lawall: 10 Years of Automated Evolution in the Linux Kernel, keynote MASCOTS conference, October 23.
- Julia Lawall: Fast and Precise Retrieval of Forward and Back Porting Information for Linux Device Drivers. Lund University, Tsinghua University, University of Illinois, National University of Singapore.
- Julia Lawall: Julia's adventures with Why3. CNAM.

- Lucas Serrano: SPINFER: Semantic patch inference for the Linux kernel. Singapore Management University.
- Gilles Muller: *Research problems in thread scheduling for multicore general purpose operating systems*, WOS Workshop (Rennes), University of Utah, University of New South Wales, University of Sydney, ENS Lyon.
- Pierre-Évariste Dagand: *Programming with dependent types*, Collège de France.

10.1.5. Scientific Expertise

Julia Lawall, Gilles Muller: Discussion with Starburst as part of their survey of sovereign operating systems (March 19, 2019).

10.1.6. Research Administration

- Gilles Muller: Member of a hiring committee for a Professor Position at ENS Lyon.
- Gilles Muller: Elected member of IFIP WG 10.4 (Dependability),
- Bertil Folliot: Elected member of the IFIP WG10.3 working group (Concurrent systems)
- Julia Lawall: Founding member of IFIP WG 2.11 (Program Generation),
- Pierre-Évariste Dagand: Member of a hiring committee for a “Professeur Assistant d’exercice incomplet en Informatique” at École Polytechnique

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Professional Licence: Bertil Folliot, Programmation C, L2, SU, France
- Professional Licence: Bertil Folliot, Lab projects, L2, SU, France
- Licence: Pierre-Évariste Dagand, INF311: Introduction to Programming (40h), L1, École Polytechnique, France
- Licence: Pierre-Évariste Dagand, CSE205: Computer Architecture and Operating Systems (27h), Bachelor, École Polytechnique, France
- Master: Pierre-Évariste Dagand, MPRI 2-4.4: Dependently-typed programming (12h), M2, MPRI, France
- Master: Pierre-Évariste Dagand, INF559: Computer Architecture and Operating Systems (18h), M1, École Polytechnique, France

10.2.2. Supervision

- PhD in progress : Cédric Courtaud, CIFRE Thalès, 2016-2019 (defense January 28 2020), Gilles Muller, Julien Sopéna (Delys).
- PhD in progress : Redha Gouicem, 2016-2020, Gilles Muller, Julien Sopéna (Delys).
- PhD in progress : Yoann Ghigoff, 2019-2022, Gilles Muller, Julien Sopéna (Delys), Kahina Lazri (Orange Labs).
- PhD in progress : Darius Mercadier, 2017-2020, Pierre-Évariste Dagand, Gilles Muller.
- PhD in progress : Lucas Serrano, 2017-2020, Julia Lawall.
- PhD in progress : Pierre Nigron, 2019-2021, Pierre-Évariste Dagand, Julia Lawall.

10.2.3. Juries

- Julia Lawall: PhD jury of Jesper Öqvists (University of Lund, reporter), January 18, 2019.
- Julia Lawall: PhD jury of David Come (Onera, reporter), January 25, 2019.
- Julia Lawall: PhD jury of Jason Lecercf (University of Lille, reporter), November 26, 2019.

- Julia Lawall: HDR jury of Nic Volanschi (University of Bordeaux, president), November 29, 2019.
- Gilles Muller: PhD jury of Damien Carver (Sorbonne University, president), May 17, 2019.
- Pierre-Évariste Dagand: PhD jury of Kenji Maillard (University PSL, examiner), November 25, 2019.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Julia Lawall: Chair of the Commission des Emplois Scientifiques, with Mazyar Mirrahimi.

10.3.2. Education

- Julia Lawall: Coccinelle: Practical program transformation for the Linux kernel. Ecole de Jeunes Chercheurs en Programmation.

10.3.3. Interventions

- Julia Lawall: Systèmes d'exploitation. Girls Can Code.

WILLOW Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- I. Laptev was co-organizedr of BMVA Symposium on Video Understanding in London, September 2019.
- P.-L. Guhur was co-organizer of Junior Conference on Data Science and Engineering at Paris-Saclay, September 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Area chairs

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019 (I. Laptev).
- Neural Information Processing Systems (NeurIPS), 2019 (J. Sivic).

10.1.2.2. Member of the Conference Program Committees / Reviewer

- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2019 (A. Miech, M. Tapaswi).
- IEEE/CVF International Conference on Computer Vision (ICCV), 2019 (A. Miech, M. Tapaswi).
- Neural Information Processing Systems (NeurIPS), 2019 (I. Laptev, I. Rocco, M. Tapaswi).
- British Machine Vision Conference (BMVC), 2019 (I. Rocco).
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2019 (I. Laptev, J. Carpentier, J. Sivic, Y. Labbe).
- IEEE International Conference on Robotics and Automation (ICRA), 2019 (J. Carpentier, Y. Labbe, J. Sivic).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- International Journal of Computer Vision (I. Laptev, J. Ponce, J. Sivic).
- IEEE Transactions on Pattern Analysis and Machine Intelligence (I. Laptev, J. Sivic).
- Foundations and Trends in Computer Graphics and Vision (J. Ponce).

10.1.3.2. Reviewer - Reviewing Activities

- International Journal of Computer Vision (M. Tapaswi).
- IEEE Transactions on Pattern Analysis and Machine Intelligence (I. Rocco).
- IEEE Transactions on Robotics (J. Carpentier).
- IEEE Robotics and Automation Letters (J. Carpentier).
- Plos One (M. Tapaswi).

10.1.4. Invited Talks

- I. Laptev, invited talk, AI Video Summit, FAIR, Los Angeles, June 2019.
- I. Laptev, invited talk, ActivityNet CVPR Workshop, Long Beach, June 2019.
- I. Laptev, keynote, AIST, Kazan, July 2019.

- I. Laptev, invited talk, ELLIS Workshop, San Sebastian, September 2019.
- I. Laptev, seminar, KTH, Stockholm, September 2019.
- I. Laptev, invited talk, BMVA Symposium on Video Understanding, London, September 2019.
- I. Laptev, invited talk, Qualcomm-UvA Deep Learning Seminars, Amsterdam, September 2019.
- I. Laptev, invited talk, Extreme Vision ICCV Workshop, Seoul, October 2019.
- I. Laptev, invited talk, CoVieW ICCV Workshop, Seoul, October 2019.
- I. Laptev, invited talk, Hands in Action ICCV Workshop, Seoul, October 2019.
- I. Laptev, keynote, DICTA, Perth, December 2019.
- I. Laptev, invited talk, SkolTech, Moscow, December 2019.
- J. Ponce, invited talk, Pavillon des Sciences CCI, Montbelliard, March 2019.
- J. Ponce, invited talk, France is AI, Paris, Oct. 2019.
- J. Ponce, invited talk, Ecole navale, Brest, Jan. 2019.
- J. Sivic, Keynote, European Conference on Mobile Robots (ECMR), Prague, September 2019.
- J. Sivic, Seminar on Weakly supervised learning for visual recognition, College de France, February 2019
- J. Sivic, Invited speaker, ML in PL conference, Warsaw, November 2019
- J. Sivic, Seminar, DeepMind, London, February 2019
- J. Sivic, Talk at invited workshop of the ELLIS computer vision program, San Sebastian, September 2019
- I. Rocco, invited talk, SMILE seminar at Télécom Paris, Paris, March 2019.
- I. Rocco, seminar, IMAGINE group at ENPC, Paris, April 2019.
- J-P. Laumond, invited talk, La robotique, Café Scientifique, Cité des sciences et de l'industrie, Paris, January 2019.
- J-P. Laumond, invited talk, Une machine peut-elle apprendre ?, Les Découvrades, Toulouse, February 2019.
- J-P. Laumond, invited talk, La robotique : retour vers le réel, Théâtre Tourski, Marseille, February 2019.
- J-P. Laumond, invited talk, Robots, Exhibition opening, Cité des sciences et de l'industrie, Paris, March 2019.
- J-P. Laumond, scientific talk, Robot Motion, Workshop on Robotics and Art, IEEE ICRA, Montreal, May 2019.
- J-P. Laumond, scientific talk, Wording Robotics, Workshop on Rhetoric and Robotics, IEEE ICRA, Montreal, May 2019.
- J-P. Laumond, scientific talk, Robotique et Biomécanique, Keynote, Congrès de physiologie, Montpellier, June 2019.
- J-P. Laumond, scientific talk, Robotics and AI, Istituto di Robotica e Macchine Intelligenti Grand Opening, Roma, October 2019.
- J. Carpentier, scientific talk, La robotique envisagée comme une science des données, CNRS Grenoble, January 2019.
- J. Carpentier, scientific talk, La robotique envisagée comme une science des données, Inria Grenoble, February 2019.
- J. Carpentier, scientific talk, Analytical Derivatives of Rigid Body Dynamics algorithms, RSS, June 2019.

- J. Carpentier, scientific talk, La robotique : la fabrique du mouvement artificiel, Journées DGDI Inria, Rocquencourt, November 2019.
- M. Tapaswi, scientific talk, Understanding Humans and the Stories they Tell, LIMSI Paris, February 2019.
- M. Tapaswi, scientific talk, Understanding Humans and the Stories they Tell, UPC Barcelona, August 2019.

10.1.5. Leadership within the Scientific Community

- Member of the advisory board for the IBM Watson AI Xprize (J. Ponce).
- Member of the steering committee of France AI (J. Ponce).
- Member of advisory board, Computer Vision Foundation (J. Sivic).
- Board Member Deputy, European Laboratory for Learning and Intelligent Systems – ELLIS (J. Sivic)

10.1.6. Scientific Expertise

- J. Ponce, coordinator of the AI theme for the joint French-American Committee on Science and Technology, 2018-.
- I. Laptev, head of scientific board at VisionLabs, 2019-.

10.1.7. Research Administration

- Member, Bureau du comité des projets, Inria, Paris (J. Ponce)
- Member, Scientific academic council, PSL Research University (J. Ponce)
- Member, Research representative committee, PSL Research University (J. Ponce).
- Member of Inria Commission de développement technologique (CDT), 2012-2018 (J. Sivic).
- Member of the Hiring Committee at Computer Science department, École normale supérieure (I. Laptev).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: M. Aubry, K. Alahari, I. Laptev and J. Sivic "Introduction to computer vision", M1, Ecole normale supérieure, 36h.
- Master: I. Laptev, J. Ponce and J. Sivic (together with C. Schmid, Inria Grenoble), "Object recognition and computer vision", M2, Ecole normale supérieure, and MVA, Ecole normale supérieure de Cachan, 36h.
- Master: J-P. Laumond and J. Carpentier, "Robotics", M1 MPRI, Ecole normale supérieure and Ecole normale supérieure de Cachan, 48h.
- Master: J-P. Laumond, "Robotics", Ecole des Mines de Paris, 4h.
- Master: J. Sivic, three lectures (3 x 1.5h) in the 3D computer vision class of V. Hlavac at Charles University in Prague.
- License: P.L. Guhur, "Developping web applications with React Js", L3, Université Grenoble Alpes, 30h.
- J. Ponce co-organized the PRAIRIE AI Summer School in Paris, 2019.
- Bachelor: J. Ponce, "Introduction to computer vision" MS level class, NYU Center for Data Science, Fall 2019

10.2.2. Supervision

PhD in progress : Vo Van Huy, started in Dec 2018, J. Ponce.

PhD in progress : Pierre-Louis Guhur, “Learning Visual Language Manipulation”, started in Oct 2019, I. Laptev and C. Schmid.

PhD in progress : Aamr El Kazdadi, started in Oct 2019, J. Carpentier and J. Ponce.

PhD in progress : Bruno Lecouat, started in Sept 2019, J. Ponce and J. Mairal (Inria Grenoble).

PhD in progress : Robin Strudel, “Learning and transferring complex robot skills from human demonstrations”, started in Oct 2018, I. Laptev, C. Schmid and J. Sivic.

PhD in progress : Yann Labbe, “Generalizing robotic sensorimotor skills to new tasks and environments”, started in Oct 2018, J. Sivic and I. Laptev.

PhD in progress : Minttu Alakuijala, started in Feb 2019, J. Ponce and C. Schmid.

PhD in progress : Thomas Eboli, started in Oct 2017, J. Ponce.

PhD in progress : Zongmian Li, “Learning to manipulate objects from instructional videos”, started in Oct 2017, I. Laptev, J. Sivic and N. Mansard (LAAS/CNRS, Toulouse).

PhD in progress : Yana Hasson, “Reconstruction and recognition of hand-object manipulations”, started in Nov 2017, I. Laptev and C. Schmid.

PhD in progress : Ronan Riochet, “Reconstruction and recognition of hand-object manipulations”, started in Oct 2017, E. Dupoux, I. Laptev and C. Schmid.

PhD in progress : Dmitry Zhukov, “Learning from instruction videos for personal assistants”, started in Oct 2017, I. Laptev and J. Sivic.

PhD in progress : Ignacio Rocco, “Estimating correspondence between images via convolutional neural networks”, started in Jan 2017, J. Sivic, R. Arandjelovic (Google DeepMind).

PhD in progress : Antoine Miech, “Understanding long-term temporal structure of videos”, started in Oct 2016, I. Laptev, J. Sivic.

PhD defended : Gul Varol, “Deep learning methods for video interpretation”, graduated in May 2019, I. Laptev, C. Schmid.

PhD defended : Julia Peyre, “Learning to reason about scenes from images and language”, graduated in August 2019, C. Schmid, I. Laptev, J. Sivic.

PhD defended : Theophile Dalens, “Learning to analyze and reconstruct architectural scenes”, graduated in September 2019, M. Aubry and J. Sivic.

10.2.3. Juries

- PhD thesis committee:
 - Dmitry Ulyanov, SkolTech, Russia, 2019 (I. Laptev, rapporteur).
 - Judith Bütepage, KTH, Sweden, 2019 (I. Laptev, rapporteur).
 - Alexander Richard, University of Bonn, Germany, 2019 (I. Laptev, rapporteur).
 - Rıza Alp Güler, Université Paris Saclay, France, 2019 (I. Laptev, rapporteur).
 - Tatiana Shpakova, l’École Normale Supérieure, France, 2019 (I. Laptev, examinateur).
 - Konstantin SHMELKOV, Université Grenoble Alpes, (J. Sivic, examinateur)
 - Sanjeel PAREKH, Télécom Paris, (J. Sivic, rapporteur)
 - Filip RADENOVIC, Czech Technical University (J. Sivic, rapporteur)
 - Nathan PIASCO, Université Bourgogne Franche-Comte (J. Sivic, examinateur)
- HDR committee:
 - Karteek Alahari, HDR defense, Jan. 2019 (J. Ponce)
 - Mathieu Aubry, HDR defense, Aug. 2019 (J. Ponce)

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

J.P. Laumond is the scientific curator of the permanent exhibition at Cité des Sciences et de l'Industrie. The aim of this exhibition is to help the general audience to understand the concepts of robotics. Indeed, the notion of robotics today is packed with many preconceived notions, phobias, and utopias, all fed by literature and a rich film culture. The real challenge of the exhibition is the presentation of authentic working robots that raises awareness of our relationship to these singular machines. How do they work? What are they for? What are their performances today and what will they be tomorrow? The exhibition lays bare the actual capabilities of robots and provides insight into the current issues.