

*Inria*

RESEARCH CENTER  
Saclay - Île-de-France

FIELD

Activity Report 2019

## Section Dissemination

Edition: 2020-03-21



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## COMETE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committee

Catuscia Palamidessi is member of:

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

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

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

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

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

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

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

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

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

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

Frank D. Valencia is member of:

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

Konstantinos Chatzikokolakis is member of:

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

### 9.1.2. Scientific events selection committee

#### 9.1.2.1. Chair of conference program committee

Konstantinos Chatzikokolakis:

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

### 9.1.2.2. Member of conference program committees

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

### 9.1.3. Journals

#### 9.1.3.1. Member of the editorial board

Catuscia Palamidessi is:

- (2019-) Member of the Editorial Board of the **Journal of Computer Security** IOS Press. Since 2019.
- Member of the Editorial Board of the **Proceedings on Privacy Enhancing Technologies** (PoPETs), published by De Gruyter. Since 2017.
- Member of the Editorial Board of **Mathematical Structures in Computer Science**, published by the Cambridge University Press. Since 2006.
- Member of the Editorial Board of **Acta Informatica**, published by Springer. Since 2015.
- Member of the Editorial Board of the **Electronic Notes of Theoretical Computer Science**, published by Elsevier Science. Since 2000.
- Member of the Editorial Board of **LIPICs: Leibniz International Proceedings in Informatics**, Schloss Dagstuhl–Leibniz Center for Informatics. Since 2014.

Konstantinos Chatzikokolakis is:

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

#### 9.1.3.2. Reviewing

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

### 9.1.4. Other Editorial Activities

Catuscia Palamidessi is/has been:

- Co-editor (with Anca Muscholl and Anuj Dawar) of the special issue of **Logical Methods in Computer Science** dedicated to selected papers of **ICALP 2017**.
- Co-editor (with Alexandra Silva and Natarajan Shankar) of the special issue of **Logical Methods in Computer Science** dedicated to selected papers of **LICS 2015** and **LICS 2016**.

Frank D. Valencia has been:

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

### 9.1.5. Participation in other committees

Catuscia Palamidessi has been serving in the following committees:

- External Member of the committee for the promotion to full professor of Prof. Kévin Huguenin, HEC Lausanne, Switzerland.
- Member of the committee for associate professor positions in the Datalogi Dept., Aalborg Univ., Denmark. 2019.
- Member of the panel for the Research Evaluation for Development 2019 (RED19) of the Department of Computer Science and Engineering at the University of Gothenburg, Sweden.
- Chair of the Nominating Committee for the 2019 renewal of the office holders of **SIGLOG**, the ACM Special Interest Group on Logic and Computation.
- Member of the committee for the **Alonzo Church Award** for Outstanding Contributions to Logic and Computation. From 2015. In 2018 Palamidessi is the president of this committee.
- Reviewer for the projects proposal for the program PRIN, sponsored by the Italian MIUR (“Ministero dell’Istruzione, dell’Università e della Ricerca”). Since 2005.
- Member of the **EAPLS PhD Award** Committee. From 2010.

### 9.1.6. Invited talks

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

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

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

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

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

Frank Valencia has given the following invited talk:

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

### 9.1.7. Service

Catuscia Palamidessi has served as:

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

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

Member of the hiring committee for Maître de Conférence, Ecole Polytechnique, 2019.

Frank Valencia has served as:

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

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

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

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

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

### 9.2.2. Supervision

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

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

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

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

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

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

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

### 9.2.3. *Juries*

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

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

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

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

### 9.2.4. *Other didactical duties*

Catuscia Palamidessi has been:

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

## 9.3. Popularization

### 9.3.1. *Education*

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

Catuscia Palamidessi has been:

- Invited speaker at **PLMW@POPL 2019**, the Programming Logic Mentoring Workshop 2019 (affiliated to POPL 2019). This workshop aims at encouraging graduate students and senior undergraduate students to pursue careers in programming language research, and at educating them on the research career.
- A participant in the round table on fairness, Interpretability, and Privacy in AI at the **CIFAR-UKRI-CNRS workshop**. London, June 2019.

Frank Valencia has:

- Welcomed the students of bachelor program of École Polytechnique to Inria center. Sept 12, 2019.
- Welcomed visitors from ACOFI, the Colombian Association of Faculties of Engineering to Inria center. April 8, 2019.

### 9.3.2. *Interventions*

Catuscia Palamidessi has given an invited talk at:

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

## **DATASHAPE Project-Team**

# **8. Dissemination**

## **8.1. Promoting Scientific Activities**

### **8.1.1. Scientific Events: Organisation**

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

### **8.1.2. Scientific Events: Selection**

#### *8.1.2.1. Chair of Conference Program Committees*

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

#### *8.1.2.2. Member of the Conference Program Committees*

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

### **8.1.3. Journal**

#### *8.1.3.1. Member of the Editorial Boards*

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

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

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

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

### **8.1.4. Invited Talks**

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

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

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

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

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

Clément Maria, Monash University, Australia.

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

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

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

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

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

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

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

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

### **8.1.5. Leadership within the Scientific Community**

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

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

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

### **8.1.6. Research Administration**

Marc Glisse is president of the CDT at Inria Saclay.

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

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

Clément Maria, responsable RAweb pour Datashape.

## **8.2. Teaching - Supervision - Juries**

### **8.2.1. Teaching**

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

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

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

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

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

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

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

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

### **8.2.2. Supervision**

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

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

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

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

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

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

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

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

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

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

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

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

### **8.2.3. Juries**

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

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

## **8.3. Popularization**

### **8.3.1. Interventions**

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

## **DEDUCTEAM Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Events: Organisation**

#### *9.1.1.1. Member of the Organizing Committees*

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

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

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

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

### **9.1.2. Scientific Events: Selection**

#### *9.1.2.1. Member of the Conference Program Committees*

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

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

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

#### *9.1.2.2. Reviewer*

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

Valentin Blot reviewed articles submitted to LICS'19.

Bruno Barras reviewed an article submitted to CSL'20.

### **9.1.3. Journal**

#### *9.1.3.1. Reviewer - Reviewing Activities*

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

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

### **9.1.4. Invited Talks**

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

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

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

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

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

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

### **9.1.5. Leadership within the Scientific Community**

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

### **9.1.6. Scientific Expertise**

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

### **9.1.7. Research Administration**

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

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

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

## **9.2. Teaching - Supervision - Juries**

### **9.2.1. Teaching**

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

### **9.2.2. Supervision**

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

### **9.2.3. Juries**

Bruno Barras and Valentin Blot have participated to the PhD jury of Youssef El Bakouny from Université St-Joseph, Beirut (Lebanon).

## **9.3. Popularization**

### **9.3.1. Articles and contents**

Articles

- The synthesis article Algorithmes et modèles : l'histoire d'une convergence, written a decade ago has been published in Pierre Mounoud, Leçons de mathématiques d'aujourd'hui : Volume 5 (Cassini, 2019).

Books

- Gilles Dowek, Ce dont on ne peut parler, il faut l'écrire : Langues et langages (Le Pommier, 2019)

Manuscripts

- Gilles Dowek, How the physical Church-Turing thesis changed the concept of machine, manuscript, 2019.
- Gilles Dowek, Two consequences of the hypothesis that we are within the world, manuscript, 2019.
- Gilles Dowek, Instinct, language, and artificial intelligence, manuscript, 2019.

**9.3.2. Interventions**

Gilles Dowek has been invited to the PROGRAMme workshop "Machines" where he has presented a paper How the physical Church-Turing thesis changed the concept of machine.

Gilles Dowek has been invited to the Conference on Robotics, AI, and Humanity, Science, Ethics, and Policy organized by the Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences where he has presented a paper Instinct, language, and artificial intelligence.

Gilles Dowek has been invited at the meeting Le hasard, le calcul et la vie, in Cerisy, where he has given a talk Un Chaos discret.

Gilles Dowek has been invited to the meeting Experiencing reality directly in Jerusalem where he has presented a paper Two consequences of the hypothesis that we are within the world.

## GRACE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events: Selection

#### 9.1.1.1. Member of the Conference Program Committees

- Tokenomics 2019, International Conference on Blockchain Economics, Security and Protocols, Paris: D. Augot.
- FAB 2019, Second International Symposium on Foundations and Applications of Blockchain, Los Angeles: D. Augot
- ICBC 2019 (IEEE International Conference on Blockchain and Cryptocurrency, Seoul): D. Augot
- CBT 2019 (3rd International Workshop on Cryptocurrencies and Blockchain Technology, Barcelona)
- ECC 2019 (23rd International Workshop on Elliptic Curve Cryptography, Bochum): B. Smith
- Latincrypt 2019 (Santiago de Chile): B. Smith
- C2SI (*Codes, Cryptographie et Sécurité Informatique*) 2019 (Rabat, Morocco) A. Couvreur

#### 9.1.1.2. Reviewer

- Eurocrypt 2019: D. Augot, B. Smith
- Indocrypt 2019 (20th International Conference on Cryptology in India, Hyderabad): D. Augot
- ISIT (International Symposium on Information Theory) 2019: D. Augot, A. Couvreur.
- Latincrypt 2019. A. Couvreur.
- SAC 2019: B. Smith
- STACS 2020: B. Smith

### 9.1.2. Journal

#### 9.1.2.1. Member of the Editorial Boards

- F. Morain is member of the editorial board of the *Applicable Algebra in Engineering, Communication and Computing*, Springer.
- A. Couvreur is member of the editorial board of the *Publications mathématiques de l'Institut de mathématiques de Besançon, Algèbre et Théorie des nombres*.

#### 9.1.2.2. Reviewer - Reviewing Activities

- Applicable Algebra in Engineering, Communication, and Computing: B. Smith
- Journal of Cryptographic Engineering: B. Smith
- Journal of Cryptology: B. Smith
- Publications Mathématiques de Besançon: B. Smith
- Transactions on Mathematical Software: B. Smith
- Designs, Codes and Cryptography: A. Couvreur.
- IEEE, Transactions on Information Theory: A. Couvreur.
- IEEE, Transactions on Communication: A. Couvreur.

### 9.1.3. Invited Talks

- D. Augot was invited to the joint Caen-Rouen ArcoCrypt colloquium.

- F. Morain was invited to give a talk at the seminar of the ARIC project-team in Lyon.
- G. Renault was invited to give the main keynote at PHISIC'19 workshop (Gardanne)
- G. Renault was invited to give a talk at the Workshop on Randomness and Arithmetics for Cryptography on Hardware (Roscoff)
- G. Renault was invited to give a talk at the Journée Internationale Post-Quantique organized by Institut Cyber de Grenoble Alpes.
- B. Smith was invited to give a talk at the Workshop on Arithmetic of low-dimensional abelian varieties at ICERM (Providence, USA)
- B. Smith and A. Couvreur were invited to give a talk in the mini-symposium on isogeny-based cryptography at the SIAM Conference on Applied Algebraic Geometry (Bern, Switzerland)
- B. Smith was invited to give a talk in the Autumn session of *Arithmétique en Plat Pays* (Mons, Belgium)
- A. Couvreur was invited speaker at the conference *WCC (Workshop on Coding and Cryptography) 2019* Saint Jacut de la mer, France.
- A. Couvreur was invited speaker at the conference *NuTMIC (Number Theoretic Methods In Cryptography) 2019*, Paris.

#### 9.1.4. Seminars

D. Augot is member of the scientific committee of the C2 seminar, which is the French wide, now itinerant, seminar of the subgroup “Codage et Cryptographie” of the CNRS GDR group “Informatique mathématique”.

#### 9.1.5. Scientific Expertise

G. Renault was member of the Comité d'Évaluation du LJK (Grenoble) pour l'Hcéres.

#### 9.1.6. Research Administration

- F. Morain is vice-head of the Département d'informatique of Ecole Polytechnique; in charge of years 1 and 2 for Computer Science courses.
- F. Morain is member of the Board of Master Parisien de Recherche en Informatique (MPRI); also a member of the board of the Cybersecurity track in the CS Master of IPParis.
- Recruitment committees:
  - D. Augot participated in a selection committee for an Assistant Professor position at École polytechnique.
  - A. Couvreur is member of the *commission scientifique* of Inria Saclay's research centre.
- Funding
  - D. Augot belongs to the Inria-NomadicLabs committee.
  - D. Augot belongs to MATH-INFO subcommittee of Saclay labex Laboratoire Jacques Hadamard, and has been replaced by A. Couvreur.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : F. Morain, Lectures for INF361: “Introduction à l'informatique”, 15h (equiv TD), 1st year (L3), École polytechnique. Coordinator of this module (350 students).

Licence : B. Smith: *CSE101: Introduction to Computer Programming*, 42h, L1, École polytechnique, France

Licence : G. Renault: INF361, *Introduction à l'informatique*, 50h, L3, École Polytechnique, France.

Master : A. Couvreur : *MPRI 2-13-2: Error Correcting codes and applications to cryptography*.

Master : D. Augot: lectures and labs on crypto in blockchains, 24h, M2, École polytechnique, France.

Master : F. Morain is the scientific leader of the Master of Science and Technology *Cybersecurity: Threats and Defense* of École Polytechnique.

Master : F. Morain and A. Couvreur, INF558, *Introduction to cryptology*, 36h, M1, École Polytechnique.

Master : B. Smith: *INF568: Advanced Cryptography*, 54h, M1, École polytechnique, France

Master : B. Smith and F. Morain: *MPRI 2-12-2: Algorithmes Arithmétiques pour la Cryptologie*, 22.5h, M2, Master Parisien de Recherche en Informatique, France

Master : F. Levy-dit-Vehel, discrete maths, 21h, M1, ENSTA.

Master : F. Levy-dit-Vehel, cryptography, 24h, M2, ENSTA.

### 9.2.2. Supervision

HdR : A. Couvreur, Codes algébriques et géométriques, applications à la cryptographie et à l'information quantique, Paris Diderot University, December 16, 2019.

### 9.2.3. Juries

- D. Augot was member of the thesis committee of Thomas Debris.
- G. Renault was president of the thesis committee of François Boutigny.
- G. Renault was member of the thesis committee of Ramtine Tofighi.
- B. Smith was a member of the thesis committee of Louiza Papachristodoulou (Radboud Universiteit Nijmegen)
- B. Smith was a member of the thesis committee of Joost Renes (Radboud Universiteit Nijmegen)
- B. Smith was a *rapporteur* on the thesis of Yan Bo Ti (University of Auckland).

## 9.3. Popularization

### 9.3.1. Interventions...

- D. Augot was invited to the mathematical colloquium of the University of Besançon.
- Colloque “Blockchains et compétences” à l’Assemblée nationale le 14 mars: D. Augot, who participated to three meetings at Ministry of Finance and Ministry of Industry about blockchains.
- A. Couvreur is *Correspondant de Médiation Scientifique* of Inria Saclay’s research centre.
- A. Couvreur organised the *Fête de la science 2019* at Inria Saclay on october 10 and 11 2019. J. Nardi, S. Bordage, M. Chenu de la Morinerie, M. Romeas participated to the event as volunteers.
- A. Couvreur organised the *Rendez-vous des Jeunes Mathématiciennes et Informaticiennes (RJMI)* at Inria Saclay on october 21 and 22, 2019.

## MEXICO Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events: Organisation

#### 9.1.1.1. General Chair, Scientific Chair

- Serge Haddad is a member of the steering committee of the International Conference on Application and Theory of Petri Nets and Concurrency.
- PHILIPPE DAGUE co-organized with Franck Delaplace the conference on *Computational Systems Biology for Complex Diseases* on November 28-29, 2019 at ENS Paris-Saclay, which gathered around 80 participants.
- PHILIPPE DAGUE, as responsible of the working group BIODS-IA (Systemic Symbolic Biology and Artificial Intelligence) of the GDR IA, organized the 2019 Day at Orléans on May 27.
- MATTHIAS FUEGGER co-organized the CELLS workshop at DISC'19. The workshop covers topics from computing among a consortium of cells.
- STEFAN HAAR co-directed with Benedikt Bollig the scientific and logistic organisation of the **ForMal** workshop at ENS Paris-Saclay on cross-fertilization between formal methods and machine learning.

#### 9.1.1.2. Member of the Organizing Committees

- STEFAN HAAR was co-chair and SERGE HADDAD was a member of the Scientific Committee (including organisational issues) of the Digicosme Spring School on Formal Methods and Machine Learning held in June at Cachan (**ForMaL**).

### 9.1.2. Scientific Events: Selection

#### 9.1.2.1. Chair of Conference Program Committees

- STEFAN HAAR was co-chair of program committee for the *40th International Conference on Application and Theory of Petri Nets and Concurrency*, Aachen, Germany, June 23-28, 2019.

#### 9.1.2.2. Member of the Conference Program Committees

- Serge Haddad was a member of the PC of
  - the workshop PNSE associated with ATPN 2019, Aachen, Germany, and
  - the 12th International Conference on Performance Evaluation Methodologies and Tools (VALUETOOLS 2019), Palma de Mallorca, Spain.
- PHILIPPE DAGUE was a member of the program committee of the *30th International Workshop on Principles of Diagnosis DX'19*, Klagenfurt/Austria, November 2019.
- STEFAN HAAR was
  - a member of the program committee of the *19th International Conference on Applications of Concurrency to Systems Design (ACSD 2019)*, Aachen, Germany, June 23-28, 2019, and
  - a member of the program committee of the *Workshop Algorithms & Theories for the Analysis of Event Data 2019 (ATAED 2019)*.
- MATTHIAS FUEGGER was
  - Steering committee member of IEEE ASYNC'19 and
  - PC member of IEEE ASYNC'19 and IEEE DDECS'19.

- THOMAS CHATAIN was
  - a member of the programm committee of the *19th International Conference on Applications of Concurrency to Systems Design (ACSD 2019)*, Aachen, Germany, June 23-28, 2019, and
  - a member of the program committee of the *1st International Conference on Process Mining (ICPM 2019)*
- LINA YE was a member of the program committee of the *17th International Workshop on Coordination and Self-adaptativeness of Software Applications (FOCLASA 2019)*.
- Stefan Schwoon acted as reviewer for MFCS 2019, FSTTCS 2019, FOSSACS 2019,, TACAS 2019, and STACS 2020.
- LINA YE was
  - a reviewer of the *58th Conference on Decision and Control (CDC 2019)*, and
  - a reviewer of the *the 30th International Workshop on Principles of Diagnosis (DX 2019)*.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

- STEFAN HAAR is an associate editor for *Journal of Discrete Events Dynamic Systems: Theory and Application (JDEDS)*.

#### 9.1.3.2. Reviewer - Reviewing Activities

- Serge Haddad was a reviewer for the following journals:
  - Journal of Logical and Algebraic Methods in Programming,
  - Innovations in Systems and Software Engineering, and
  - Transactions on Petri Nets and Other Models of Concurrency.
- Thomas Chatain was a reviewer for journals *Journal of Discrete Events Dynamic Systems: Theory and Application (JDEDS)* and *Fundamenta Informaticae*.
- Stefan Schwoon was a reviewer for *Journal of Discrete Event Dynamic Systems (JDEDS)*, *Transactions on Software Engineering (TSE)*, *Petri Nets and Other Models of Concurrency (ToPNoC)*, and *Transactions on Programming Languages and Systems (TOPLAS)*.
- LINA YE is a reviewer for *Journal of IEEE Access (IEEE Access)*.

### 9.1.4. Invited Talks

- Stefan Schwoon gave a talk in the SYBILA seminar of Masaryk University, Brno, on *Diagnosis and Opacity in Partially Observable Systems*.

### 9.1.5. Scientific Expertise

- Serge Haddad is a member of the scientific and administrative council (CSA) of Labex CIMI of Toulouse and a member of the scientific orientation council (COS) of LIS of Marseille (UMR 7020).

### 9.1.6. Research Administration

- Serge Haddad is Head of the Computer Science Department of ENS Paris-Saclay.
- Stefan Haar is the president of Inria's COST-GTRI.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- MATHIAS FUEGGER,  
Master :

- *Initiation à la recherche*, 10 h EQTD, M1, ENS Paris-Saclay, France
- STEFAN HAAR,
  - Licence : *Langages Formels*, EQTD, L3, ENS Paris-Saclay, France;
  - Master :
    - *Analyse de la dynamique des systèmes biologiques*, 10 h EQTD, M1, Université Paris-Saclay, France
    - *Initiation à la recherche*, 10 h EQTD, M1, ENS Paris-Saclay, France
    - *Module SPECIF* , 12 h EQTD, M1, UPMC, France.

Serge Haddad is head of the Computer Science department of ENS Paris-Saclay. He teaches basic and advanced algorithmics (L3) and probabilistic features of computer science (M1).

STEFAN SCHWOON

- Responsable L3 Informatique, ENS Paris-Saclay
- Enseignement au M1 MPRI : cours *Initiation à la Vérification* (22,5h)
- Enseignement au L3 Info : cours *Architecture et Système* (45h), projet *Programmation orienté objet* (15h), TD *Langages Formels* (22,5h)
- Enseignement à l'Aggrégation Maths Option Informatique: cours *Algorithmique* (22,5h)

### 9.2.2. Supervision

- SERGE HADDAD is supervising with Alain Finkel the PhD thesis of Igor Khmelnsky on Verification of infinite-state systems and machine learning.
- STEFAN HAAR has been supervising, with Co-supervisor Loic Paulevé at LABRI, the PhD theses of HUGUES MANDON, *Models and Algorithms for cellular reprogramming strategies prediction*, ENS Paris-Saclay, defended on Nov. 19, 2019, and JURAJ KOLCÁK, *Parametric Logical Regulatory Networks*, PhD research started in March 2017.
- THOMAS CHATAIN has been supervising, with co-supervisor Josep Carmona at Universitat Politècnica de Catalunya (Barcelona, Spain), the PhD thesis of MATHILDE BOLTENHAGEN, *Optimization Techniques for Conformance Checking and Model Repair in Process Mining*, PhD research started in November 2018.
- LINA YE has been supervising, with Co-supervisor Philippe Dague at LRI, the PhD these of LULU HE, *Robustness Analysis of Real-Time Systems*, PhD research started in February 2019.

### 9.2.3. Juries

- PHILIPPE DAGUE was *garant* and member of the HdR jury of Sabine Peres, and a member of the HdR jury of Jean-Marie Lagniez.
- Serge Haddad was the president of the PhD committee of Mauricio Gonzalez defended at ENS Paris-Saclay in November.
- THOMAS CHATAIN has been a jury member for the PhD defense of SAMY JAZIRI (supervisors Patricia Bouyer-Decitre et Nicolas Markey) at Université Paris-Saclay in September 2019.
- THOMAS CHATAIN has been a jury member for the SIF PhD award (Prix de thèse Gilles Kahn 2019).

## 9.3. Popularization

### 9.3.1. Internal or external Inria responsibilities

- STEFAN HAAR has been the president of COST-GTRI.

## PARSIFAL Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events: Organisation

#### 10.1.1.1. General Chair, Scientific Chair

Dale Miller is currently General Chair for the ACM/IEEE Symposium on Logic in Computer Science (LICS).

#### 10.1.1.2. Member of the Organizing Committees

Dale Miller is member of the Steering Committee for CPP, FSCD, and LFMTP and is a member of the Executive Committee of the ACM Special Interest Group on Logic and Computation (SIGLOG).

Gabriel Scherer is part of the Steering Committee of the ML Family Workshop and the OCaml Workshop.

### 10.1.2. Scientific Events: Selection

#### 10.1.2.1. Chair of Conference Program Committees

Dale Miller was program committee co-chair for the workshop on Logical Frameworks and Meta Languages: Theory and Practice (LFMTP), 2019, Vancouver, Canada.

#### 10.1.2.2. Member of the Conference Program Committees

- Gabriel Scherer: JFLA 2020.
- Beniamino Accattoli: LSFA 2019.
- Dale Miller is a PC member for the 10th International Joint Conference on Automated Reasoning (IJCAR-2020), the 23rd International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR-23), and the Workshop on Trends, Extensions, Applications and Semantics of Logic Programming (TEASE-LP).

#### 10.1.2.3. Reviewer

- Gabriel Scherer: POPL 2020, ESOP 2020.
- Lutz Straßburger: FoSSaCS 2020, CSL 2020, TABLEAUX 2019, WoLLIC 2019, LICS 2019.
- Beniamino Accattoli: FoSSaCS 2020, POPL 2020, ICALP 2019, ICTAC 2019, PPDP 2019, FSCD 2019, CSL 2019, LSFA 2019.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Dale Miller is on the editorial board of the Journal of Automated Reasoning (Springer) and the Journal of Applied Logic (Elsevier). He has also been an editor for a special issue of FSCD 2017 for Logical Methods in Computer Science.

### 10.1.3.2. Reviewer - Reviewing Activities

- Lutz Straßburger: APAL, ToCL, BSL, LMCS.
- Beniamino Accattoli: LMCS, TCS.
- Dale Miller has served on the evaluation committee for the EATCS Distinguished Dissertation Award and the EACSL Ackermann Award. He was also the Chair of the Herbrand Award Committee of the Association for Automated Reasoning.

### 10.1.4. Invited Talks

- Beniamino Accattoli has been invited speaker at FSCD 2019.
- Dale Miller has been an invited speaker at the Workshop on Proof Theory for Automated Deduction, Automated Deduction for Proof Theory (23-25 October 2019, Funchal, Madeira) and the Third Tübingen Conference on Proof-Theoretic Semantics, 27-30 March 2019.

### 10.1.5. Scientific Expertise

- Lutz Straßburger: reviewer for the Israel Science Foundation.
- Dale Miller has been a member of an international review panel for the Distinguished Professor Grant at the Swedish Research Council.
- Gabriel Scherer: reviewer for ANR.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : G. Scherer, “*Introduction à la programmation fonctionnelle*”, 50h, L1, Paris 8 (Vincennes - Saint Denis), France

Master: B. Accattoli, “*Logique linéaire et paradigmes logiques du calcul*”, 18h, M2, Master Parisien de Recherche en Informatique (MPRI), France.

Master: D. Miller, “*Logique linéaire et paradigmes logiques du calcul*”, 18h, M2, Master Parisien de Recherche en Informatique (MPRI), France.

Summer School: G. Scherer, “*Programmation fonctionnelle en OCaml*”, 12h, public d’ingénieurs de recherche, formation ANF (CNRS), France

Summer School: L. Straßburger: “*Introduction to Deep Inference*”, 10h, ESSLLI 2020, Riga, Latvia

Summer School: B. Accattoli, “ *$\lambda$ -Calculus and Reasonable Cost Models*”, 15h, Escuela de Ciencia Informaticas (ECI 2019), Buenos Aires, Argentina.

### 10.2.2. Supervision

- PhD in progress: Marianela Morales, “Combinatorial Proof Theory for Modal Logic”, 1/10/2019, Lutz Straßburger.
- PhD in progress: Maico Leberle, “Call-by-need and Reasonable Cost Models”, Beniamino Accattoli.
- PhD completed: Ulysse Gérard, “Computing with relations, functions, and bindings”, 18 October 2019, Ecole Doctorale de l’Institut Polytechnique de Paris, advised by Dale Miller.
- PhD in progress: Matteo Manighetti, “Structural proof theory for induction in linear logic”, advised by Dale Miller since 1/10/2017.
- PhD in progress: Marianela Morales, “Combinatorial Proof Theory for Modal Logic”, 1/10/2019, Lutz Straßburger

### 10.2.3. Juries

Dale Miller was a reportor for the PhD thesis of Aurore Alcoei (ENS Lyon, 17 October 2019).

## **10.3. Popularization**

### ***10.3.1. Interventions***

G. Scherer and M. Manighetti participated the “Fête de la Science” exhibit at Inria Saclay on the whole day of October 11th, 2019.

G. Scherer presented the research domain of certified programming to an audience of computer security professionals at the “Pass the Salt” conference in Lille, on Wednesday July 3rd.

## SPECFUN Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events: Organisation

#### 8.1.1.1. General Chair, Scientific Chair

- Alin Bostan is part of the Scientific advisory board of the conference series *Effective Methods in Algebraic Geometry* (MEGA).
- Alin Bostan is part of the scientific committee of the **GDR EFI** (“Functional Equations and Interactions”) dependent on the mathematical institute (INSMI) of the CNRS. The goal of this GDR is to bring together various research communities in France working on functional equations in fields of computer science and mathematics.
- Frédéric Chyzak is member of the steering committee of the *Journées Nationales de Calcul Formel* (JNCF), the annual meeting of the French computer algebra community.
- Frédéric Chyzak was until July 2019 elected member (and chair) of the steering committee of the *International Symposium on Symbolic and Algebraic Computation* (ISSAC, 3-year term).
- Georges Gonthier is a member of the steering committee of the *Certified Programs and Proofs Conference* (CPP).

#### 8.1.1.2. Member of the Organizing Committees

- Alin Bostan co-organizes, with Lucia Di Vizio, the *Séminaire Différentiel* between U. Versailles and Inria Saclay, with a bi-annual frequency (~ 30 participants per event).
- Alin Bostan co-organizes, with Lucia Di Vizio, the working group *Marches dans le quart de plan*, at Institut Henri Poincaré (Paris), with a bi-monthly frequency (~ 15 participants per event).

### 8.1.2. Scientific Events: Selection

#### 8.1.2.1. Member of the Conference Program Committees

- Alin Bostan and Frédéric Chyzak have served as conference program committee members for the first *Maple Conference*.
- Georges Gonthier has served as a conference program committee members for the first *Workshop on Formal Methods for Blockchains* (FMBC).

#### 8.1.2.2. Reviewer

- Frédéric Chyzak has served as reviewer for the selection of the international conferences CICM 2019, ISSAC 2019, and Maple Conference 2019.
- Alin Bostan has served as reviewer for the selection of the international conferences FPSAC 2019 and Maple Conference 2019.

### 8.1.3. Journal

#### 8.1.3.1. Member of the Editorial Boards

- Alin Bostan is on the editorial board of the *Journal of Symbolic Computation*.
- Alin Bostan is on the editorial board of the *Annals of Combinatorics*.
- Guy Fayolle is associate editor of the journal *Markov Processes and Related Fields*.
- Georges Gonthier is on the editorial board of the *Journal of Formalized Reasoning*.

#### 8.1.3.2. Reviewer - Reviewing Activities

- Alin Bostan has served as a reviewer for the journals: *Journal of Symbolic Computation*, *Journal of Combinatorial Theory, Series A*, *Applicable Algebra in Engineering Communications and Computing*, *Journal of Combinatorial Algebra*, *Annales Henri Lebesgue*, *Annali dell Università di Ferrara*, *Mathematics of Computation*, *Séminaire Lotharingien de Combinatoire*.
- Guy Fayolle has been a reviewer for *Advances in Applied Probability*, *Markov Processes and Related Fields*, *Probability Theory and Related Fields*, *Queueing Systems: Theory and Applications*, *European Journal of Combinatorics*, *Journal of Statistical Physics*, *Physica A*, *Springer Science*.

#### 8.1.4. Invited Talks

- Frédéric Chyzak has been invited to give a talk on his joint work with Alin Bostan about the enumeration of walks with small steps in the quarter plane at the international conference **Transient Transcendence in Transylvania** (Braov, Romania).
- Frédéric Chyzak has been invited to give talks on his joint work with Philippe Dumas about Becker's conjecture on Mahler functions: at the conference **Équations Fonctionnelles et Interactions** (Anglet), during a Seminar on Symbolic Computation at the Academy of Mathematics and Systems Science, Chinese Academy of Sciences (Beijing, China), and at the conference **Differential Galois Theory in Strasbourg** (Strasbourg).
- Frédéric Chyzak has been invited to give a talk on his joint work with Alin Bostan, Pierre Lairez, and Bruno Salvy (AriC) at the **6th Summer School in Symbolic Computation** (Chongqing, China).
- Alin Bostan has been invited to give a talk at the **Algebraic Marvels in Differential Equations**, Universidade Lisboa, Lisbonne, Portugal, February 2019.
- Alin Bostan has been invited to give a talk at the **Combinatorics Seminar**, LaBRI, Bordeaux, March 2019.
- Alin Bostan has been a plenary speaker at the international conference **AofA 2019**, Luminy (France), June 2019.
- Alin Bostan has been a plenary speaker at the international conference **FPSAC 2019**, Ljubljana (Slovenia), July 2019.
- Alin Bostan has been invited to give a series of five lectures at the **Vienna Summer School of Mathematics**, Weissensee, Austria, Sept. 2019.

#### 8.1.5. Leadership within the Scientific Community

##### 8.1.5.1. Regular Research Seminar

The team organizes a **regular seminar**, with roughly 10 talks a year. The topics reflect the team's interests: computer algebra, combinatorics, number theory, formal proofs, and related domains.

##### 8.1.5.2. Research Working Group

In 2018, we have set up a working group **Marches dans le quart de plan** around the study of walks in the quarter plan, a very active research topic in probability theory and enumerative combinatorics in recent years. The working group is organized at Institut Henri Poincaré, with a regularity of two sessions per month. The original purpose was to read the article "On the Nature of the Generating Series of Walks in the Quarter Plane" by T. Dreyfus, C. Hardouin, J. Roques, M. Singer, published in *Invent. Math.* this year. But the reality exceeded expectations: the working group attracted a dozen of people, working either in computer science or pure mathematics, who began to interact and a very good dynamic was created. Altogether, 15 sessions have taken place in 2019.

##### 8.1.5.3. International Conference

Together with Kilian Raschel (CNRS, U. Tours), Alin Bostan co-organized an international conference, **Transient Transcendence in Transylvania**, held in Romania from May 13 to 17, 2019. They took care together of all the infrastructure for this conference: program, invitations, web page, etc. This conference was a unique event in Romania, with a truly exceptional list of speakers, from several continents and countries: South Africa, Germany, Austria, Canada, United States, France, Netherlands, Poland, and of course, Romania. As a natural continuation of the conference, a volume will be published in the Springer collection **PROMS** (Proceedings in Mathematics & Statistics), with Bostan and Raschel as editors.

### 8.1.6. Scientific Expertise

- Guy Fayolle is scientific advisor and associate researcher at the *Robotics Laboratory of Mines ParisTech*.
- Georges Gonthier is taking part in an interministerial survey on the technological roadblocks for blockchains, which has been jointly commissioned to Inria, CEA and IMT by the Ministère de l'Economie, the Ministère de l'Education supérieure et de la Recherche, and the Secrétariat d'Etat au Numérique. He also participates to the Blockchain Taskforce set up by the French government.

### 8.1.7. Research Administration

- Frédéric Chyzak is project coordinator of the ANR project *De rerum natura*.
- Guy Fayolle is a member of the working group for *Computer System Modeling* of the *International Federation for Information Processing* (IFIP WG 7.3).
- Georges Gonthier serves on the Conseil de l'École Doctorale de Mathématiques Hadamard.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

#### Master:

Alin Bostan, *Algorithmes efficaces en calcul formel*, 36h, M2, MPRI, France.

Alin Bostan, *Modern Algorithms for Symbolic Summation and Integration*, 21h, M2, Master d'Informatique Fondamentale de l'ENS de Lyon, France.

Frédéric Chyzak, *Algorithmes efficaces en calcul formel*, 22.5h, M2, MPRI, France.

Pierre Lairez, *Algorithmique avancée (INF550)*, TD, 18h, M2, École polytechnique, France.

Pierre Lairez, *Les bases de la programmation et de l'algorithmique (INF411)*, TD, 40h, M1, École polytechnique, France.

### 8.2.2. Juries

- Alin Bostan has served as an examiner in the PhD jury of Robin Larrieu, *Arithmétique rapide pour des corps finis*, Ecole polytechnique, December 10, 2019.
- Alin Bostan has served as a member of the monitoring PhD committee of Youssef Abdelaziz, Univ. Paris 6.
- Alin Bostan has served as a member of the monitoring PhD committee of Manon Bertin, Univ. Rouen.
- Frédéric Chyzak has served as a reviewer in the PhD jury of Joelle Saade, *Méthodes symboliques pour les systèmes différentiels linéaires à singularité irrégulière*, Université de Limoges, November 5, 2019.
- Frédéric Chyzak has served as a reviewer in the PhD jury of Amélie Trotignon, *Marches sur des réseaux dans des cônes : aspects combinatoires et probabilistes*, Université de Tours, December 6, 2019.
- Pierre Lairez has served as a reviewer in the PhD jury of Josué Tonelli-Cueto, *Condition and Homology in Semialgebraic Geometry*, TU Berlin, November 28, 2019.
- Georges Gonthier has served in the PhD jury of Armaël Guénaud, *Mechanized Verification of the Correctness and Asymptotic Complexity of Programs*, Université de Paris, December 16, 2019.

## 8.3. Popularization

### 8.3.1. Articles and contents

- Georges Gonthier published an interview article *Blockchain: ce que c'est, comment ça marche* in *La Recherche*, **545**, March 2019.
- Georges Gonthier co-wrote with Ivan Odonnat (Banque de France) *L'avenir du bitcoin et de la blockchain*, in *Les Carnets de l'Institut Diderot* (2019).

## TOCCATA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events: Organisation

#### 10.1.1.1. General Chair, Scientific Chair

J.-C. Filliâtre, scientific chair and co-organizer of EJCP (École Jeunes Chercheurs en Programmation du GDR GPL) at Strasbourg on June 24–28, 2019. 5 days / 8 lectures / 25 participants. <http://ejcp2019.icube.unistra.fr/>

### 10.1.2. Scientific Events: Selection

#### 10.1.2.1. Chair of Conference Program Committees

S. Boldo, program co-chair of the 26th IEEE Symposium on Computer Arithmetic (ARITH 2019), Kyoto, Japan. [35]

#### 10.1.2.2. Member of the Conference Program Committees

S. Boldo, 11th NASA Formal Methods Symposium (NFM 2019)

J.-C. Filliâtre, 10th International Conference on Interactive Theorem Proving (ITP 2019)

J.-C. Filliâtre, 9th ACM SIGPLAN International Conference on Certified Programs and Proofs (CPP 2020)

J.-C. Filliâtre, European Symposium on Programming (ESOP 2020)

G. Melquiond, 26th IEEE Symposium on Computer Arithmetic (ARITH 2019)

G. Melquiond, 10th International Conference on Interactive Theorem Proving (ITP 2019)

#### 10.1.2.3. Reviewer

The members of the Toccata team have reviewed numerous papers for numerous international conferences.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

G. Melquiond, member of the editorial board of *Reliable Computing*.

J.-C. Filliâtre, member of the editorial board of *Journal of Functional Programming*.

#### 10.1.3.2. Reviewer - Reviewing Activities

The members of the Toccata team have reviewed numerous papers for numerous international journals.

#### 10.1.4. Invited Talks

G. Melquiond, “Computer Arithmetic and Formal Proofs” [19], at the 30th Journées Francophones des Langages Applicatifs (JFLA 2019).

J.-C. Filliâtre, “Deductive Verification of OCaml Libraries” [17], at the 15th International Conference on integrated Formal Methods (iFM), December 2019, Bergen, Norway.

J.-C. Filliâtre, “Retour sur 25 ans de programmation avec OCaml” [18], at Journées Francophones des Langages Applicatifs (JFLA), January 2019, Les Rousses, France.

J.-C. Filliâtre, “The Why3 tool for deductive verification and verified OCaml libraries”, at Framac/Spark day 2019, Paris, France.

#### 10.1.5. Leadership within the Scientific Community

S. Boldo, elected chair of the ARITH working group of the GDR-IM (a CNRS subgroup of computer science) with J. Detrey (Inria Nancy) and now L.-S. Didier (Univ. Toulon).

J.-C. Filliâtre, chair of IFIP WG 1.9/2.15 verified Software.

#### 10.1.6. Scientific Expertise

G. Melquiond, member of the scientific commission of Inria-Saclay, in charge of selecting candidates for PhD grants, Post-doc grants, temporary leaves from universities (“délégations”).

S. Boldo, member of the program committee for selecting postdocs of the maths/computer science program of the Labex mathématique Hadamard.

S. Boldo has mentored for 1 year a female PhD student of University Paris-Saclay (from epidemiology).

J.-C. Filliâtre, grading the entrance examination at X/ENS (“option informatique”).

C. Marché, member of DigiCosme committee for research and innovation (selection of projects for working groups, post-doc grants, doctoral missions, invited professors)

#### 10.1.7. Research Administration

G. Melquiond, member of the committee for the monitoring of PhD students (“*commission de suivi doctoral*”).

S Boldo, member of the CLFP (“*commission locale de formation permanente*”).

S. Boldo, member of the (national) IES commission.

S. Boldo, member of the CDT commission of Saclay (“*commission de développement technologique*”).

S. Boldo, member of the STIC department commission of Univ. Paris-Sud.

S. Boldo, member of the executive commission for the Digicosme Labex.

S. Boldo, deputy scientific director (DSA) of Inria Saclay research center from January 1st, 2019

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master Parisien de Recherche en Informatique (MPRI) <https://wikimpri.dptinfo.ens-cachan.fr/doku.php>: “Proofs of Programs” <http://www.lri.fr/~marche/MPRI-2-36-1/> (M2), C. Marché (12h).

A. Lanco, *Unix et programmation Web*, 24h, L2, Université Paris-Saclay, France.

G. Melquiond, *Programmation C++ avancée*, 12h, M2, Université Paris-Saclay, France.

J.-C. Filliâtre, *Langages de programmation et compilation*, 25h, L3, École Normale Supérieure, France.

J.-C. Filliâtre, *Les bases de l’algorithmique et de la programmation*, 15h, L3, École Polytechnique, France.

J.-C. Filliâtre, *Compilation*, 18h, M1, École Polytechnique, France.

S. Boldo was invited in the Xavier Leroy’s course at Collège de France on Dec 19th.

### 10.2.2. Supervision

HDR: G. Melquiond, “Formal Verification for Numerical Computations, and the Other Way Around” [11], Université Paris-Sud, Apr. 1st, 2019.

PhD: F. Faissole, “Formalisations d’analyses d’erreurs en analyse numérique et en arithmétique à virgule flottante”, Université Paris-Saclay & Université Paris-Sud, Dec 13th 2019, supervised by S. Boldo and A. Chapoutot. [Not yet on HAL]

PhD: A. Coquereau, “Amélioration de performances du solveur SMT Alt-Ergo grâce à l’intégration d’un solveur SAT efficace”, Université Paris-Saclay & Université Paris-Sud, Dec 16th 2019, supervised by S. Conchon, F. Le Fessant et M. Mauny. [Not yet on HAL]

PhD: M. Roux, “Extensions de l’algorithme d’atteignabilité arrière dans le cadre de la vérification de modèles modulo théories”, Université Paris-Saclay & Université Paris-Sud, Dec 19th 2019, supervised by Sylvain Conchon. [Not yet on HAL]

PhD in progress: R. Rieu-Helft, “Développement et vérification de bibliothèques d’arithmétique entière en précision arbitraire”, since Oct. 2017, supervised by G. Melquiond and P. Cuoq (TrustIn-Soft).

PhD in progress: D. Gallois-Wong, “Vérification formelle et filtres numériques”, since Oct. 2017, supervised by S. Boldo and T. Hilaire.

PhD in progress: Q. Garchery, “Certification de la génération et de la transformation d’obligations de preuve”, since Oct. 2018, supervised by C. Keller, C. Marché and A. Paskevich.

PhD in progress: A. Lanco, “Stratégies pour la réduction forte”, since Oct. 2019, supervised by T. Balabonski and G. Melquiond.

G. Turbiau has been a M1 trainee for 2 months, supervised by S. Boldo.

### 10.2.3. Juries

S. Boldo, member of the Inria CRCN recruiting juries, national one and at Rennes.

S. Boldo, president of the PhD defense of Clothilde Jeangoudoux, Sorbonne University, May 21st

S. Boldo, reviewer of the habilitation of Christoph Lauter, Sorbonne University, May 22nd

S. Boldo, reviewer of the PhD defence of Florent Bréhard, ENS Lyon, July 12th

S. Boldo, reviewer of PhD defence of Damien Rouhling, Université Côte d’Azur, Sept 30th

S. Boldo, president of the PhD defense of Yohan Chatelain, Université Paris-Saclay, Dec 12th

S. Boldo, president of the PhD defense of Armaël Guéneau, Université de Paris, Dec 16th

S. Boldo, member of the PhD defense of Antoine Kaszczyc, Université Paris-Nord, Dec 18th

J.-C. Filliâtre, reviewer of the PhD defense of Y. El Bakouny, “Scallina: On the Intersection of Scala and Gallina”, Université Saint-Joseph, Beirut, Lebanon, December 19, 2019.

J.-C. Filliâtre, president of the PhD defense of L. Blatter “Relational properties for specification and verification of C programs in Frama-C”, University Paris Saclay, September 26, 2019.

## 10.3. Popularization

### 10.3.1. Internal or external Inria responsibilities

S. Boldo has been the scientific head for Saclay for the MECSI group for networking about computer science popularization inside Inria until October 2019.

She was also responsible (with A. Couvreur of the Grace team and M. Quet of the SCM) for the 2019 “Fête de la science” on October 10th and 11th 2019. Teenagers were welcomed on 8 activities ranging from unplugged activities with Duplo construction toys to programming, and from applied mathematics to theoretical computer science.

### **10.3.2. Education**

S. Conchon and J.-C. Filliâtre, together with K. Nguyen and T. Balabonski (members of the LRI team but not members of Toccata), wrote a book “Numérique et Sciences Informatiques, 30 leçons avec exercices corrigés” (Ellipses, August 2019) [36] targeting the new Computer Science programme in the French high school system, which started in September 2019.

S. Boldo gave a talk and was involved in the organization of the “Rencontres des Jeunes mathématiciennes et Informaticiennes” organized in Saclay on Oct 21st and 22nd 2019. About 20 female teenagers were welcomed for two days with talks and exercises to discover research.

### **10.3.3. Interventions**

C. Marché presented an overview of the Why3 tool and its ecosystem at the Paris Open Source Summit in Saint-Denis, Dec. 11, 2019, as part of a workshop “ATELIER Inria : OCaml, Coq, Why 3: pour concevoir codes et infrastructures plus sûrs en C, Java, Javascript, Ada” <https://www.opensourcesummit.paris/conferences.html?date=1576022400>).

S. Boldo gave a talk at a high school in Sceaux on Feb 8th.

S. Boldo presented the floating-point arithmetic at IRIF to the members of the CODYS ANR on April 1st.

## **CELESTE Project-Team**

# **8. Dissemination**

## **8.1. Promoting Scientific Activities**

### **8.1.1. Scientific Events: Organisation**

#### *8.1.1.1. Member of the Organizing Committees*

Semaine SEME - Orsay 14/01-18/01-2019, <https://www.math.u-psud.fr/semi2019/index.php>. G. Stoltz was part of the organizing and scientific committees. C. Keribin was part of the scientific committee.

### **8.1.2. Scientific Events: Selection**

#### *8.1.2.1. Member of the Conference Program Committees*

- S. Arlot was member of the steering committee of the 4th Junior Conference on Data Science and Engineering at Paris-Saclay (Sept. 2019), CentraleSupélec, Paris-Saclay campus, Gif-sur-Yvette.
- C. Keribin is member of steering committee of the the bi-monthly Seminar of probability and statistics (Laboratoire de mathématiques d'Orsay)
- C. Giraud is co-organiser (with E. Kuhn) of the conference StatMathAppli at Fréjus (1-6 september 2019)
- C. Giraud is local member of scientific committee of the Institut Pascal (year around program)

#### *8.1.2.2. Reviewer*

We performed many reviews for various international conferences.

### **8.1.3. Journal**

#### *8.1.3.1. Member of the Editorial Boards*

S. Arlot is associate editor of Annales de l'Institut Henri Poincaré B – Probability and Statistics.

#### *8.1.3.2. Reviewer - Reviewing Activities*

We performed many reviews for various international journals.

### **8.1.4. Invited Talks**

- S. Arlot, Changepoint Workshop, Nov. 2019, Institut des Systèmes Complexes, Paris.
- S. Arlot, Thematic week "Data and Analytics for Short-Term Operations", Feb. 2019, Isaac Newton Institute for Mathematical Science, Cambridge, UK.
- C. Keribin, Some asymptotic properties of model selection criteria in the latent block model. 12th Scientific meeting CLADAG 2019, Cassino (Italie), September 11 – 13, 2019
- C. Giraud, Community detection and sequential learning, IOPS 2019, Bordeaux, June 19-21, 2019
- C. Giraud, Sequential learning in random graph, Genova, May 2019.
- P. Pamphile, Maintenance cost forecasting for a fleet of vehicles, IMDR, Paris, April 2019

### **8.1.5. Research Administration**

S. Arlot coordinates the math-AI (mathematics for artificial intelligence) program of the Labex Mathématique Hadamard and is member of the executive committee of Fondation Mathématique Jacques Hadamard (FMJH).

S. Arlot is member of the steering committee of the Paris-Saclay Center for Data Science.

S. Arlot is member of the prefiguration group of the Computer Science Graduate School of University Paris-Saclay.

P. Massart is Director of the Fondation Mathématique Jacques Hadamard (FMJH).

C. Giraud has coordinated the math-SV (mathematics for life science) program of the Labex Mathématique Hadamard and is member of the executive committee of Fondation Mathématique Jacques Hadamard (FMJH).  
 C. Giraud is member of the scientific committee of the Labex IRMIA (Strasbourg)  
 C. Giraud is local member of the scientific committee of the Pascal Institute (Saclay)  
 C. Giraud is member of the prefiguration group of the Mathematics Graduate School of University Paris-Saclay.  
 C. Giraud is member of the steering committee of the Mathematics Modelisation and Biodiversity chair.  
 C. Giraud is in charge of the whole master program in Mathematics of Paris Saclay.  
 C. Giraud is in charge of the Statistics and Machine Learning track in the master program in Mathematics of Paris Saclay.

## **8.2. Teaching - Supervision - Juries**

### **8.2.1. Teaching**

Licence: S. Arlot, Probability and Statistics, 68h, L2, Université Paris-Sud  
 Master: S. Arlot, Statistical learning and resampling, 30h, M2, Université Paris-Sud  
 Master: S. Arlot, Probability and Statistics M2 seminar, 30h, M2, Université Paris-Sud  
 Master: S. Arlot, Preparation to French mathematics agrégation (statistics), 50h, M2, Université Paris-Sud  
 Master: C. Giraud, High-Dimensional Statistics, 45h, M2, Université Paris-Sud  
 Master: C. Giraud, Theoretical Guidelines in Data Analysis, 45h, M2, Université Paris-Sud  
 Master: C. Giraud, Lecture Group, 25h, M2, Université Paris-Sud  
 Master: C. Giraud, Mathematics for AI, 75h, M1, Université Paris-Sud

### **8.2.2. Supervision**

PhD in progress: Guillaume Maillard, Aggregated cross-validation, started Sept. 2016, co-advised by S. Arlot and M. Lerasle  
 PhD in progress: El Mehdi Saad, Interactions between statistical and computational aspects in machine learning, started Sept. 2019, co-advised by S. Arlot and G. Blanchard  
 PhD in progress: Tuan-Binh Nguyen, Efficient Statistical Testing for High-Dimensional Models, co-advised by S. Arlot and B. Thirion  
 PhD in progress: Rémi Coulaud, Forecast of dwell time during train parking at station, started Oct. 2019, co-advised by G. Stoltz and C. Keribin, Cifre with SNCF  
 PhD in progress: Olivier Coudray, Fatigue aided-design, started Nov. 2019, co-advised by C. Keribin and P. Pamphile, Cifre with PSA  
 PhD: Solène Thépaut, Problèmes de clustering liés à la synchronie en écologie, Université Paris Saclay, Dec. 2019, C. Giraud.  
 PhD: Théophile Olivier, Le rôle de la diversité et des perturbations environnementales sur la stabilité temporelle des communautés animales en milieu naturel, Museum National Histoire Naturelle, Sep. 2019, co-advised by E. Porcher and C. Giraud.  
 PhD in progress: Yann Issartel, Non-parametric estimation in random networks, started Sep. 2017, C. Giraud.  
 PhD in progress: Solenne Gaucher, Sequential learning in random networks, started Sep. 2018, C. Giraud.

### **8.2.3. Juries**

S. Arlot: referee for the HdR of Servane Gey, Université Paris Descartes, 07/02/2019.  
 S. Arlot: member of the PhD committee of Solène Thepaut, Université Paris-Sud, 06/12/2019.

C. Giraud: many HDR and PhD juries as referee or member of the committee

## **8.3. Popularization**

### **8.3.1. Interventions**

- Public exhibitions: S. Arlot is member of the steering committee of a general-audience exhibition about artificial intelligence, that is co-organized by Fermat Science (Toulouse), Institut Henri Poincaré (IHP, Paris) and Maison des Mathématiques et de l'Informatique (MMI, Lyon).

## COMMANDS Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### 9.1.1. Scientific Events: Selection

##### 9.1.1.1. Member of the Conference Program Committees

- F. Bonnans: PGMO Days, EDF'Lab Palaiseau, Dec. 3-4, 2019.

#### 9.1.2. Journal

##### 9.1.2.1. Member of the Editorial Boards

- F. Bonnans: Associate Editor: Math. & Appl. / Annals of the Academy of Romanian Scientists (AOSR)

### 9.2. Teaching - Supervision - Juries

#### 9.2.1. Teaching

Master :

F. Bonnans: *Numerical analysis of partial differential equations arising in finance and stochastic control*, 18h, M2, Ecole Polytechnique and U. Paris 6, France.

F. Bonnans: *Optimal control of ordinary differential equations*, 15h, M2, Optimization master (U. Paris-Saclay) and Ensta, France.

A. Kröner : *Optimal control of partial differential equations*, 20h, M2, Optimization master (U. Paris-Saclay), France.

L. Pfeiffer: *Optimal control of ordinary differential equations*, 18h, M2, Optimization master (U. Paris-Saclay) and Ensta, France.

L. Pfeiffer: *Optimisation continue et combinatoire*, 17h, Ensta, France.

#### 9.2.2. Supervision

Finished PhD : A. Le Rhun, *Optimal and robust control of hybrid vehicles*. Started September 2016 (IFPEN fellowship), finished December 2019, F. Bonnans and P. Martinon.

PhD in progress : G. Bonnet, *Efficient schemes for the Hamilton-Jacobi-Bellman equation*. Started Oct. 2018. F. Bonnans and J.-M. Mirebeau, LMO, U. Orsay.

PhD in progress : P. Lavigne, *Mathematical study of economic equilibria for renewable energy sources*. Started Oct. 2018. F. Bonnans and L. Pfeiffer.

### 9.3. Popularization

- F. Bonnans: codirection of a joint Allistene-Ancre commission (contribution to the national strategy for research), Numerics and Energy committee (2017-2019).
- F. Bonnans: Dimitrie Pompeiu Prize Committee (Academy of Romanian Scientists).

## DEFI Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. General Chair, Scientific Chair

- P.M Congedo is the Chair of the CWI-Inria workshop at CWI in Amsterdam on September 19, 2019.
- P.M. Congedo is the Chair of UQOP2020 Conference, organized in Paris on March 18-21, 2019.

#### 8.1.2. Member of the Organizing Committees

- L. Chesnel co-organizes the Journée de rentrée (2019) of the Centre de Mathématiques Appliquées of École Polytechnique.
- L. Chesnel co-organizes the seminar of the Centre de Mathématiques Appliquées of École Polytechnique.
- L. Chesnel co-organizes the seminar of the Inria teams Defi-M3DISIM-Poems.
- M. Bonazzoli organizes the working group of Defi team.
- J.R. Li is organizer of Ecole d'été d'excellence for Chinese Master's students funded by French Embassy in China, 07/2019.

#### 8.1.3. Journal

##### 8.1.3.1. Member of the Editorial Boards

- G. Allaire is member of the editorial boards of
  - Book series "Mathématiques et Applications" of SMAI and Springer,
  - ESAIM/COCV, Structural and Multidisciplinary Optimization,
  - Discrete and Continuous Dynamical Systems Series B,
  - Computational and Applied Mathematics,
  - Mathematical Models and Methods in Applied Sciences (M3AS),
  - Annali dell'Università di Ferrara,
  - OGST (Oil and Gas Science and Technology),
  - Journal de l'École Polytechnique - Mathématiques,
  - Journal of Optimization Theory and Applications.
- P.M. Congedo is Editor of Mathematics and Computers in Simulation, MATCOM (Elsevier).
- H. Haddar is member of the editorial boards of
  - Inverse Problems
  - SIAM Journal on Scientific Computing
  - SIAM Journal of Mathematical Analysis

##### 8.1.3.2. Reviewer - Reviewing Activities

We reviewed papers for top international journals in the main scientific themes of the team.

**8.1.4. Invited Talks**

- G. Allaire
  - SIAM Geosciences, Houston, March 11-14, 2019.
  - DCAMM seminar, DTU, Copenhagen, April 5, 2019.
  - WCSMO, Beijing, May 20-24, 2019.
  - Mathematical Design of New Materials, Cambridge, June 3-14, 2019.
  - Chalmers Colloquium, Sweden, August 26-30, 2019.
  - Sim-AM, Pavia, September 11-13, 2019.
  - Shape Optimization and Isoperimetric and Functional Inequalities, Levico Terme, September 23-27, 2019.
  - Computational modelling of Complex Materials across the Scales, Glasgow, October 1-4, 2019.
  - New trends in PDE constrained optimization, Linz, October 15-18, 2019.
- M. Bonazzoli
  - Seminar at POEMS lab, ENSTA-ParisTech, Palaiseau, France.
  - ENUMATH 2019, European Numerical Mathematics and Advanced Applications Conference, Egmond aan Zee, Netherlands.
  - Parallel Solution Methods for Systems Arising from PDEs, Marseille, France (Plenary invited talk).
- L. Chesnel
  - Waves conference, Vienna, August 2019.
  - Applied Inverse Problems conference, Grenoble, 2019.
- H. Haddar
  - Applied Inverse Problems conference, Grenoble, July 2019
  - International Conference on Antenna Measurements & Applications, Bali, October 2019
  - New Trends in Analysis and Probability, Sousse, September 2019
  - Workshop in the memory of A. Lechleiter, Bremen, May 2019
  - La journée des rencontres DEFI-MEDISIM-POEMS, December, 2019
- P.M. Congedo
  - Workshop "Numerical simulation of hypersonic flows, July 8, 2019.
  - Seminar at ONERA, Meudon, November 29, 2019.

**8.1.5. Leadership within the Scientific Community**

- G. Allaire is a board member of Institut Henri Poincaré (IHP). He is the chairman of the scientific council of IFPEN (French Petroleum Institute and New Energies). He is the chairman of the scientific council of AMIES (Agency for Interaction in Mathematics with Business and Society).

**8.1.6. Scientific Expertise**

- G. Allaire is a member of the "comité national" CNRS, section 41 (mathematics).
- G. Allaire is a member of the scientific board of the Gaspard Monge program on optimization (PGMO) at the Jacques Hadamard Mathematical Foundation.
- J.R. Li is Member of the SIAM Committee on Programs and Conferences 2017-2019.
- J.R. Li is Member Elu of Inria Commission d'Evaluation, 2015-2019.
- M. Bonazzoli was a member of the Evaluation committee for the 2020 call of Inria Associate Teams programme.

- H. Haddar was the president of the evaluation committee for mathematical laboratories at the Universities of Sfax and Sousse (Tunisia)

### 8.1.7. Research Administration

- J.R. Li is correspondent International for Centre de Mathematiques Appliquees, Ecole Polytechnique, 2018-present.
- J.R. Li is responsable for the Ecole Polytechnique part of the French-Vietnam Master Program in Applied Mathematics, 2016-present.
- M. Bonazzoli is the International partnerships Scientific Correspondent for Inria Saclay.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

- Master: Grégoire Allaire, Approximation Numérique et Optimisation, for students in the second year of Ecole Polytechnique curriculum: 8 lessons of 1h30.
- Master: Grégoire Allaire, Transport and diffusion, for students in the third year of Ecole Polytechnique curriculum. 9 lessons of 2h jointly with F. Golse.
- Master: Housseem Haddar, Waves and imaging: Concepts, Theory and Applications, Master M2 "mathematical modeling": 9 lessons of 3h.
- Master: Housseem Haddar, Inverse scattering problems, Master M2, ENIT, 10 lessons of 3h.
- Master: Lucas Chesnel, Elementary tools of analysis for partial differential equations, for students in the first year of Ensta ParisTech curriculum, 25 equivalent TD hours.
- Master: Lucas Chesnel, Numerical approximation and optimisation, for students in the second year of Ecole Polytechnique curriculum: 2 TDs of 4h + one project.
- Master: Lucas Chesnel, Modal Modélisation mathématique par la démarche expérimentale, for students in the second year of Ecole Polytechnique curriculum: 5 TDs of 2h.
- Master: Grégoire Allaire, Optimal design of structures, for students in the third year of Ecole Polytechnique curriculum. 9 lessons of 1h30.
- Master: Grégoire Allaire, Theoretical and numerical analysis of hyperbolic systems of conservation laws, Master M2 "mathematical modeling", 8 lessons of 3h.
- Master: Jing Rebecca Li, Lecturer of course Mathematical and numerical foundations of modeling and simulation using partial differential equations French-Vietnam Master in Applied Mathematics, University of Science, Ho Chi Minh City, 9/2019. 2 weeks.
- Master: P.M. Congedo, Numerical methods in Fluid Mechanics, ENSTA ParisTech, 12 h.
- Master: P.M. Congedo, Numerical methods for Hyperbolic Problems, von Karman Institute for Fluid Dynamics, 12 h.
- Doctorat: Housseem Haddar, Inverse problems, Executive Education, Ecole Polytechnique, 9h

### 8.2.2. Supervision

- PhD: K. Napal, On the use of sampling methods and spectral signatures for the resolution of inverse scattering problems (defended, December 2019), L. Audibert, L. Chesnel and H. Haddar.
- PhD: F. Feppon (defended, December 2019) sur l'optimisation topologique de systèmes couplés fluide-solide-thermique, G. Allaire and Ch. Dapogny.
- PhD: M. Kchaw, Higher order homogenization tensors for DMRI modeling (defended July 2019), H. Haddar and M. Moakher
- PhD: B. Charfi, Identification of the singular support of generalized impedance boundary conditions (defended September 2019), S. Chaabane and H. Haddar.

- PhD: F. Sanson, Estimation du risque humain lié à la retombée d'objets spatiaux sur Terre (defended in September 2019), P.M. Congedo, O. Le Maitre.
- PhD: N. Razaaly, Rare Event Estimation and Robust Optimization Methods with Applications to ORC Turbine Cascade (defended in July 2019), P.M. Congedo.
- PhD: G. Gori, Non-ideal compressible-fluid dynamics: developing a combined perspective on modeling, numerics and experiments (defended in January 2019), A. Guardone, P.M. Congedo.
- PhD: J. Carlier, Schémas aux résidus distribués et méthodes à propagation des ondes pour la simulation d'écoulements compressibles diphasiques avec transfert de chaleur et de masse (defended in December 2019), M. Pelanti, P.M. Congedo.
- Ph.D. in progress: S. Houbar sur la cavitation dans le fluide caloporteur induite par les mouvements des assemblages d'un réacteur (CEA, to be defended in 2020). G. Allaire and G. Campioni.
- Ph.D. in progress: M. Boissier, Optimisation couplée de la topologie des formes et de la trajectoire de lasage en fabrication additive (to be defended in 2020). G. Allaire and Ch. Tournier.
- L. Rakotondrainibe sur l'optimisation des liaisons entre pièces dans les systèmes mécaniques (Renault, to be defended in 2020). G. Allaire.
- J. Desai sur l'optimisation topologique de structures au comportement non-linéaire avec des méthodes de déformation de maillage (IRT SystemX, to be defended in 2021). G. Allaire and F. Jouve,
- PhD in progress: H. Girardon, Non destructive testing of PWR tubes using eddy current rotating coils, to be defended in 2021, H. Haddar and L. Audibert
- PhD in progress: M. Rihani, Maxwell's equations in presence of metamaterials (to be defended in 2021), A.-S. Bonnet-BenDhia and L. Chesnel.
- PhD in progress: Chengran Fang, Enabling cortical cell-specific sensitivity on clinical multi-shell diffusion MRI microstructure measurements. (to be defended in 2022) Jing Rebecca Li and Demian Wassermann
- PhD in progress: Nouha Jenhani, Differential sampling methods for defect imaging in periodic layers. (to be defended in 2022) Housseem Haddar and Mourad Bellasoued
- PhD in progress: Amal Labidi, Inverse problems for wave equation with magnetic potential. (to be defended in 2022) Housseem Haddar and Mourad Bellasoued
- PhD in progress: Marwa Mansouri, Inside outside duality for artificial backgrounds. (to be defended in 2022) Housseem Haddar, Lucas Chesnel and Moez Khenissi
- PhD in progress: M. Bihr sur la fabrication additive et l'optimisation topologique de structures (to be defended in 2022) G. Allaire and B. Bogosel.
- PhD in progress: R. Delvaux sur les algorithmes de couplage à convergence super-linéaire entre neutronique, thermohydraulique et thermique (to be defended in 2022) G. Allaire and C. Patricot,.
- PhD in progress: A. Touiti sur l'optimisation de l'anisotropie pour des structures issues de la fabrication additive (to be defended in 2022) G. Allaire and F. Jouve.
- PhD in progress: M. Rivier, optimization under uncertainty through a Bounding-Box concept (to be defended in May 2020), P.M. Congedo.
- PhD in progress: Joao Reis, Advanced methods for stochastic elliptic PDEs (to be defended in October 2020), P.M. Congedo, O. Le Maitre.
- PhD in progress: Anabel Del Val, Advanced bayesian methods for aerospace applications (to be defended in October 2020), P.M. Congedo, O. Le Maitre, O. Chazot, T. Magin.
- PhD in progress: P. Novello, Deep learning for reentry atmospheric flows (to be defended in November 2021), P.M. Congedo, D. Lugato, G. Poette.
- PhD in progress: E. Solai, Virtual Prototyping of the EVE expander (to be defended in October 2021), P.M. Congedo, H. Beaugendre.

- PhD in progress: N. Leoni, Bayesian inference of model error in imprecise models (to be defended in February 2022), P.M. Congedo, O. Le Maitre, M.G. Rodio.

### **8.3. Popularization**

- M. Bonazzoli and L. Chesnel made a presentation in the context of the Fête de la science 2019 to several groups of young students (from 10 to 17 years old).
- M. Bonazzoli was representative for SMAI at the Métiers des Maths stand at the 20th Salon Culture et Jeux Mathématiques.

#### ***8.3.1. Internal or external Inria responsibilities***

- P.M. Congedo is Deputy Coordinator of "Maths/Engineering" Program of the Labex Mathématiques Hadamard.
- J.R. Li is Member Elu of Inria Commission d'Evaluation, 2015-2019.
- M. Bonazzoli is the International partnerships Scientific Correspondent for Inria Saclay.

#### ***8.3.2. Internal action***

- M. Bonazzoli, H. Haddar and J.R. Li monitored an internship at Defi team for 6 middle school students (one afternoon).

## DISCO Project-Team

## 7. Dissemination

### 7.1. Promoting Scientific Activities

#### 7.1.1. Scientific Events: Organisation

##### 7.1.1.1. General Chair, Scientific Chair

Islam Boussaada is co-leading the national research group *Tools for analysis and synthesis of infinite-dimensional systems* (GT OSYDI) of the CNRS/GDR MACS ( <https://gdr-macs.cnrs.fr/groupe-de-travail/osydi>).

##### 7.1.1.2. Member of the Organizing Committees

Catherine Bonnet was member of the organizing committee of SIAM CT19, Chendu China, July 2019.

#### 7.1.2. Scientific Events: Selection

- Catherine Bonnet was Associate Editor for the 2019 American Control Conference, Philadelphia, USA and the 2020 American Control Conference, Denver, USA.
- Catherine Bonnet and Islam Boussaada were Associate Editor for the Joint IFAC Conference 7th Symposium on System Structure and Control (SSSC 2019) and 15th IFAC Workshop on Delay Systems, Sinaia, Roumania, Sept 2019.
- Frédéric Mazenc was Associate Editor for the conferences 2019 American Control Conference, Philadelphia, USA and for the European Control Conference 2020, St Petersburg.
- Giorgio Valmorbidia was an Associate Editor for the 2019 American Control Conference, Philadelphia, USA and the 2020 American Control Conference, Denver, USA. He was also Associate editor for the 58th Conference in Decision and Control, Nice, France. Silviu Niculescu is the IEEE CSS (Control System Society) representative for the series of IEEE Conferences (nternational Conference on System Theory, Control and Computing.): <http://icstcc2019.cs.upt.ro>

##### 7.1.2.1. Member of the Conference Program Committees

- Catherine Bonnet and Giorgio Valmorbidia are members of the scientific committee of the GDRI (International Research Group funded by CNRS) SpaDisco since 2017.
- Giorgio Valmorbidia is a member of the steering committee of the GDRI (International Research Group funded by CNRS) SpaDisco since 2017.
- Catherine Bonnet and Islam Boussaada were members of the International Program Committee of the Joint IFAC Conference 7th Symposium on System Structure and Control (SSSC 2019) and 15th IFAC Workshop on Delay Systems, Sinaia, Roumania, Sept 2019.

##### 7.1.2.2. Reviewer

The team reviewed papers for several international conferences including IEEE Conference on Decision and Control, IEEE American Control Conference, European Control Conference ...

#### 7.1.3. Journal

##### 7.1.3.1. Member of the Editorial Boards

Frédéric Mazenc is member of the editorial boards of the following journals:

- Asian Journal of Control : Editor;
- IEEE Transactions on Automatic Control, Associate Editor;
- European Journal of Control, Associate Editor;
- Journal of Control and Decision, Associate Editor;
- IEEE Control Systems Letters, Associate Editor.

Silviu Niculescu is the Founding Editor and the Editor-in-Chief (since its creation in 2012) of the Springer (hard-cover) book series Advances in Delays and Dynamics ADD@S <https://www.springer.com/series/11914>.

He is Associate Editor at European Journal of Control (since 2011).

#### 7.1.3.2. Reviewer - Reviewing Activities

The team reviewed papers for several journals including SIAM Journal on Control and Optimization, Automatica, IEEE Transactions on Automatic Control, Systems and Control Letters ...

#### 7.1.4. Invited Talks

Giorgio Valmorbida was invited to give a talk in the workshop Scientific Computing Across Scales: Extreme Events and Criticality in Fluid Mechanics in April 15 - 18, 2019, at The Fields Institute 15-17, Toronto, CA.

Frédéric Mazenc was invited to give a talk in the CINVESTAV, IPN: Model Reduction and Predictor Control, in August 2, 2019, Mexico City, Mexico.

#### 7.1.5. Leadership within the Scientific Community

Catherine Bonnet is a member of the IFAC Technical Committees on *Distributed Parameter Systems* and on *Biological and Medical Systems*. She is a member of the management committee of the COST Action FRACTAL (2016-2020).

Silviu Niculescu is the chair of the IFAC TC 2.2 "Linear Control Systems" since 2017 (including 300-350 researchers through the world). The TC is coordinating 4 "Working Groups" (WG) including the WG on "Time-Delay Systems".

#### 7.1.6. Scientific Expertise

Since September 2015, Catherine Bonnet is a member of the Evaluation Committee of Inria and since 2019 of the Bureau of the Evaluation Committee of Inria.

Since September 2016, Islam Boussaada is a member of the Scientific Council of IPSA (Engineering School in Aeronautic and Aerospace approved by CTI).

Since September 2018, Islam Boussaada is a member of the Development Council of Sup'Biotech (Engineering School in Biotechnologies approved by CTI).

Since 2014, Frédéric Mazenc is an expert for the FNRS (Belgium). His mission consists in evaluating research projects funded by this institution.

Since 2012, Frédéric Mazenc is a, expert for the ANVUR (National Agency for the Evaluation of Universities and Research Institutes, Italy). His mission consists in evaluating the contribution of Italian scientists.

Since 2011, Frédéric Mazenc is a, expert for the Romanian National Council for Development and Innovation (Romania). His mission consists in evaluating research projects funded by the this institution.

#### 7.1.7. Research Administration

Catherine Bonnet is a member of the

- *Parity Committee* of Inria created since its creation in 2015.
- Bureau du Comité des Projets du CRI Saclay-Ile-de-France since 2018.
- Coordination committee of the Mentoring Program of Inria Saclay-Île-de-France.
- PhD referent committee at L2S, CentraleSupélec.
- Administration council of the association *Femmes et Mathématiques*

Since October 2017, Frédéric Mazenc is Correspondant Inria Saclay A.M.I.E.S., <http://www.agence-maths-entreprises.fr/>. Since September 2019, he is member of "la Commission de Développement Technologique". He is member of the "Conseil du Laboratory of Signal and Systems".

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

Licence: Islam Boussaada, *Control of bioprocesses*, 27h, 1st year, CentraleSupélec Université Paris-Saclay, France.

Licence: Silviu Niculescu, *Mathematics*, 15h, 1st year, ENSMP Paris, France.

Licence: Silviu Niculescu, *Introduction to optimization*, 30h, 1st year, ESIEE Paris, France.

Licence: Giorgio Valmorbida, *Signal Processing*, 1st year, 43h CentraleSupélec Université Paris-Saclay.

Master: Giorgio Valmorbida, *Tutorials - Modelling, Control, Optimization and Electrical Machines*, 1st and 2nd years, 55.5h, CentraleSupélec Université Paris-Saclay.

Master: Giorgio Valmorbida, *Projects and Internship supervision*, 2nd and 3rd years, 81h, Centrale-Supélec Université Paris-Saclay.

Master: Giorgio Valmorbida, *Nonlinear Systems*, 3h, CentraleSupélec Executive Education, Université Paris-Saclay.

Master : Catherine Bonnet, *Stability properties and stabilization of interconnected dynamical systems involving delays*, 20h, IPSA, France.

Master : Silviu Niculescu, *Signals and Systems*, 12h, ESIEE Paris, France.

Master : Giorgio Valmorbida, *Control*, 40.5, Master MAE (M1), Université Paris-Saclay.

Master : Giorgio Valmorbida, *Stability of Dynamical Systems*, Master ATSI (M2), Université Paris-Saclay.

Doctorat : Silviu Niculescu, *Controlling Delayed Dynamics: Advances in Theory, Methods and Applications*, 7h, CISM Udine, Italy.

### 7.2.2. Supervision

PhD in progress: Souad Amrane, on real pole-placement for retarded functional differential equations, University Mouloud Mammeri. Since 09/2017. Supervisors: Fazia Bedouhene and Islam Boussaada.

PhD in progress: Amina Benarab, Characterization of the exponential decay of linear delay systems solutions, University Paris Saclay. Since 10/2019. Supervisors: Catherine Bonnet, Islam Boussaada and Karim Trabelsi.

PhD: Caetano Cardeliqio, Contributions to the Theory of Time-Delay Systems: Stability and Stabilisation, UNICAMP & Université Paris Saclay, 27 September 2019; Supervisors : Catherine Bonnet and André Fioravanti.

PhD in progress: Leonardo Broering Groff, Commande Périodique Déclenché par Événements, Université Paris-Saclay et UFRGS. Since 03/2017. Supervisors: Giorgio Valmorbida and Joao Manoel Gomes da Silva Jr.

PhD in progress: Jose Castillo, Design, Modeling and control of multi drones for aerial handling, University Paris Saclay, 10/2018, Islam Boussaada and Juan Escareno.

PhD in progress: Naouel Debiane, Bond Graph modeling for robust control and diagnosis of macatronic systems, University of Lille. Since 03/2017. Supervisors: Belkacem Ould-Bouamama and Islam Boussaada.

PhD in progress: Ali Diab, Commande par filtrage non linéaire des systèmes d'assistance direction, Université Paris-Saclay. Since 10/2019. Supervisors: Giorgio Valmorbida and William Pasillas-Lepine.

PhD in progress: Ricardo Falcon Prado, Active vibration control of flexible structures under input saturation through delay-based controllers and anti- windup compensators, University Paris Saclay. Since 10/2019. Supervisors: Islam Boussaada and Sami Tliba.

PhD in progress: Javier Eduardo Pereyra Zamudio, New backstepping design for systems with delay: finite time stabilization, robust stabilization, CINVESTAV, Instituto Politecnico Nacional. Since 10/2019. Supervisors: Sabine Mondié and Frédéric Mazenc.

PhD in progress : Amira Remadna, On pole-placement approach for retarded functional differential equations, University Badji Mokhtar-Annaba. Since 09/2019. Supervisors: Islam Boussaada and Azzedine Benchettah.

Postdoc: Da-Jung Cho, Modelling of bacteria communication, May-August 2019. Supervisors: Catherine Bonnet, Matthias Fuegger and Thomas Nowak.

### **7.2.3. Juries**

- Catherine Bonnet was member of the Grenoble and Nancy Junior Researcher Inria recruiting committees.
- Catherine Bonnet was President of the PhD thesis of Yanqiao Wei '*Non-asymptotic and Robust fractional order differentiators using generalized modulating functions*', 15 November 2019, INSA Val de Loire.

## **7.3. Popularization**

### **7.3.1. Interventions**

- The team welcomed Sophie Merheb, high-school student of Lycée privé Notre-Dame Les Oiseaux, Verneuil-sur-Seine, for the period 17-26 June 2019.

**GAMMA Project-Team (section vide)**































































- PhD (in progress): Arthur Marmin, Rational models optimized exactly for chemical processes improvement, 2017-2020, supervised by M. Castella (Telecom Paristech) and J.-C. Pesquet.
- PhD (in progress): Sylvain Lempereur. Analyse quantitative de la morphologie de poissons aux stades larvaire et juvénile. 2017-2020. Supervised by Hugues Talbot and Jean-Stéphane Joly (CNRS).
- PhD (in progress): Daniel Antunes: Contraintes géométriques et approches variationnelles pour l'analyse d'image. 2016-2019. Supervised by Hugues Talbot and Jacques-Olivier Lachaud (U. Savoie-Mont Blanc)
- PhD (in progress): Marie-Charlotte Poilpre: Méthode de comparaison faciale morphologique, adaptée aux expertise judiciaires, basée sur la modélisation 3D. 2017-2020. Supervised by Hugues Talbot and Vincent Nozick (U. Paris-Est)
- PhD (in progress): Thank Xuan Nguyen. Détection et étude morphologique des sources extragalactiques par analyse variationnelle. 2018-2021. Supervised by Hugues Talbot and Laurent Najman (ESIEE)
- PhD (in progress): Marvin Lerousseau. Apprentissage statistique en imagerie médicale et en génomique pour prédire l'efficacité des thérapies anti-tumorales. 2018-2021. Supervised by Nikos Paragios (Theranacea), Eric Deutch (IGR) and Hugues Talbot.
- PhD (in progress): Mario Viti. Low-dose assessment of coronal vessel health on CT. 2019-2022. Supervised by Hugues Talbot.

#### **10.2.4. Juries**

The faculty members of the team participated to numerous PhD Thesis Committees, HDR Committees and served as Grant Reviewers. Moreover, they serve regularly as a jury Member to Final Engineering Internship and the Research Innovation Project for students of CentraleSupélec, FR.































## 10.3. Popularization

### 10.3.1. Articles and contents

- Steve Haroz's [twitter account](#) on a broad range of topics including open science, visualization, and visual perception have been viewed over 1.1 million times and received over 30,000 engagements in the form of clicks, likes, and retweets in 2019.
- Steve Haroz maintains a website cataloging openly accessible papers and research materials in visualization research. [Open Access Vis](#) has averaged 2,000 unique visitors per year for the past three years.
- Steve Haroz maintains a [research website](#) receiving 5,000 unique visitors and a [blog](#) on research receiving 2,000 unique visitors in 2019.
- Pierre Dragicevic and Yvonne Jansen: the data physicalization wiki and the List of Physical Visualizations and Related Artefacts (600 weekly visits) are continuously being updated.
- Matthew Brehmer wrote a Medium article "Visualizing Trends on Mobile Phones: Animation or Small Multiples?" on an Aviz co-authored publication <https://medium.com/multiple-views-visualization-research-explained/mobiletrendvis-a948fa65bccd>

### 10.3.2. Interventions

- Lonni Besançon gave a TEDx talk on work conducted at Aviz with Pierre Dragicevic and Tobias Isenberg [11]. Watch the talk here: <https://www.youtube.com/watch?v=pDHomZ8FEoU>.
- Jean-Daniel Fekete: Panel at Imaginascience 2019, « Faire parler les données : le défi de la data visualisation », Annecy, October 16, 2019

### 10.3.3. Creation of media or tools for science outreach

Petra Isenberg collaborated on research to develop a visualization tool to better understand clustering algorithms. The tool is available at <https://educlust.dbvis.de/>.











- Aarhus, Danemark, *Live Coding with interactive movement based technologies*, Performing Art Platform, 2019: Sarah Fdili Alaoui
- Aarhus University, Danemark, *Crafting dance and technologies*, 2019: Sarah Fdili Alaoui
- Conservatory of Vicenza, Italy, Workshop on *Music dance and interaction*, 2019: Sarah Fdili Alaoui
- Conservatory of Vicenza, Italy, Master class of *Creation with technologies*, 2019: Sarah Fdili Alaoui
- Stereolux, Nantes, France, Workshop on *Live Coding with interactive movement based technologies* at LAB-DAYS - MovA, 2019: Sarah Fdili Alaoui

#### 9.1.4. Leadership within the Scientific Community

- Information Science and Technology (STIC) Department, Université Paris-Saclay: Michel Beauouin-Lafon (chair since June 2018), Wendy Mackay (member)
- Research division, Université Paris-Saclay: Michel Beauouin-Lafon (advisor for Digital Sciences since June 2018)
- Digiteo RTRA research network, Université Paris-Saclay: Michel Beauouin-Lafon (director since June 2018)
- Computer Science Department, Université Paris-Sud: Michel Beauouin-Lafon (vice-President for research)
- ACM Technology Policy Council: Michel Beauouin-Lafon (vice-chair)

#### 9.1.5. Scientific Expertise

##### International

- HCERES Evaluation: Wendy MACKay, external expert
- NSERC Evaluation: Michel Beauouin-Lafon, external expert
- ACM SIGCHI “Lifetime Service Award” committee chair: Michel Beauouin-Lafon
- ACM “Policy Award” committee adjunct chair: Michel Beauouin-Lafon

##### National

- CNRS INS2I “Cellule ERC”: Michel Beauouin-Lafon, member
- Agence Nationale de la Recherche (ANR), Appel à projets génériques: Sarah Fdili Alaoui, reviewer

#### 9.1.6. Research Administration

Telecom ParisTech, “Comité de la recherche”: Michel Beauouin-Lafon (member)

“Conseil de Laboratoire”, LRI: Wendy Mackay, Cédric Fleury (members)

“Commission consultatives paritaires (CCP)” Inria: Wendy Mackay (President)

“Conseil Scientifique”, LRI: Michel Beauouin-Lafon (member)

CCSU, “Commission Consultative de Spécialistes de l’Université”, Université Paris-Sud: Michel Beauouin-Lafon, Wendy Mackay (members)

“Commission Locaux”, LRI: Theophanis Tsandilas (member)

“Commission Scientifique”, Inria: Theophanis Tsandilas (member)

“Jury de recrutement, Maître de Conférences”, Télécom ParisTech: Michel Beauouin-Lafon (member)

“Assessment committee for associate professors”, Aarhus University: Michel Beauouin-Lafon (member)

“Comité de sélection, Maître de Conférences”, Université Paris-Sud: Cédric Fleury

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

International Masters: Theophanis Tsandilas, *Probabilities and Statistics*, 32h, M1, Univ. Paris-Saclay

Interaction & HCID Masters & Innovation and Entrepreneurship Minor: Sarah Fdili Alaoui, Coordinator

HCID Masters: Sarah Fdili Alaoui, *Innovation & Entrepreneurship Advanced*, 15h, M2, Univ. Paris-Sud

HCID Masters: Michel Beaudouin-Lafon, Wendy Mackay, *Fundamentals of Situated Interaction*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Sarah Fdili Alaoui, *Creative Design*, 27h, M1 et M2, Univ. Paris-Sud

Interaction & HCID Masters: Michel Beaudouin-Lafon, *Fundamentals of Human-Computer Interaction*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Michel Beaudouin-Lafon & Cédric Fleury, *Groupware and Collaborative Interaction*, 31.5 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Wendy Mackay, *Career Seminar* 6 hrs, M2, Univ. Paris-Sud

Interaction & HCID Masters: Wendy Mackay, *Design of Interactive Systems*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Wendy Mackay, *Advanced Design of Interactive Systems*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Baptiste Caramiaux, *Gestural and Mobile Interaction*, 24 hrs, M1/M2, Univ. Paris-Sud

Polytech: Cédric Fleury, *Projet Java-Graphique-IHM*, 24 hrs, 3st year, Univ. Paris-Sud

Polytech: Cédric Fleury, *Interaction Homme-Machine*, 18 hrs, 3st year, Univ. Paris-Sud

Polytech: Cédric Fleury, *Option Réalité Virtuelle*, 56 hrs, 5th year, Univ. Paris-Sud

Polytech: Cédric Fleury, *Réalité Virtuelle et Interaction*, 48 hrs, “Apprentis” 5th year, Univ. Paris-Sud

### 9.2.2. Supervision

#### PhD students

PhD: Philip Tchernavskij, *Designing and Programming Malleable Software*, Université Paris-Saclay, 3 December 2019. Advisors: Michel Beaudouin-Lafon

PhD: Yujiro Okuya, *CAD Modification Techniques for Design Reviews on Heterogeneous Interactive Systems*, 8 November 2019. Advisors: Patrick Bourdot (LIMSI-CNRS) & Cédric Fleury

PhD: Anna Gogolou, *Iterative and Expressive Querying for Big Data Series*, 15 November 2019. Advisors: Anastasia Bezerianos (ILDA-Inria), Themis Palpanas (Université Paris-Descartes) & Theophanis Tsandilas

PhD in progress: Stacy (Shu-Yuan) Hsueh, *Embodied design for Human-Computer Co-creation*, November 2015. Advisors: Wendy Mackay & Sarah Fdili Alaoui

PhD in progress: Jean-Philippe Rivière, *Embodied Design for Human-Computer Partnership in Learning Contexts*, October 2017. Advisors: Wendy Mackay, Sarah Fdili Alaoui & Baptiste Caramiaux

PhD in progress: Yiran Zhang, *Telepresence for remote and heterogeneous Collaborative Virtual Environments*, October 2017. Advisors: Patrick Bourdot (LIMSI-CNRS) & Cédric Fleury

PhD in progress: Téó Sanchez, *Co-Learning in Interactive Systems*, September 2018. Advisors: Baptiste Caramiaux & Wendy Mackay

PhD in progress: Elizabeth Walton, *Inclusive Design in Embodied Interaction*, November 2018. Advisor: Wendy Mackay

PhD in progress: Miguel Renom, *Theoretical bases of human tool use in digital environments*, October 2018. Advisors: Michel Beaudouin-Lafon & Baptiste Caramiaux

PhD in progress: Han Han, *Participatory design of digital environments based on interaction substrates*, October 2018. Advisor: Michel Beaudouin-Lafon

PhD in progress: Viktor Gustafsson, *Co-adaptive Instruments fo Game Design*, October 2018. Advisor: Wendy Mackay

PhD in progress: Yi Zhang, *Generative Design using Instrumental Interaction, Substrates and Co-adaptive Systems*, October 2018. Advisor: Wendy Mackay

PhD in progress: Martin Tricaud, *Instruments and Substrates for Procedural Creation Tools*, October 2019. Advisor: Michel Beaudouin-Lafon

PhD in progress: Arthur Fages, *Collaborative 3D Modeling in Augmented Reality Environments*, December 2019. Advisors: Cédric Fleury & Theophanis Tsandilas

#### Masters students

Clément Sauvard, “*Designing 3D Scenes with multiple AR views*”: Cédric Fleury & Theophanis Tsandilas

Cyril Crebouw, “*Remote collaboration across wall-sized displays*”: Cédric Fleury & Michel Beaudouin-Lafon

Ellen Sigloch, “*Prototips website*”: Wendy Mackay

Yuyan Jing, “*Coadaptive Map: A Design tool for GIS users*”: Wendy Mackay

Alina Nicolae, “*TweakyTemplate: Reifying template tweaks for book design*”: Wendy Mackay

Wuji Geng, “*Studies of the Interaction Museum: The gap between HCI research and practice*”: Wendy Mackay

Xi Hu, “*Motion Palette: Motion Exploration Support Tool for Dynamic Visual Effects*”: Wendy Mackay

Siba Siddique, “*Investigating User Decision in Human-AI Interaction*”: Baptiste Caramiaux

### 9.2.3. Juries

#### PhD theses

Sylvain Pauchet, University of Toulouse/ENAC “*From surface to surface: Transformations de surface tactile pour l’interaction incarnée dans le cockpit*” (advisor: Stéphane Conversy): Wendy Mackay, reviewer

Hugo Scurto, IRCAM/Sorbonne University “*Designing With Machine Learning for Interactive Music Dispositifs*” (advisor: Frédéric Bevilacqua): Wendy Mackay, reviewer

Emmanouil Giannidakis, Télécom ParisTech, “*Promoting and characterizing the menu to keyboard shortcuts transition*” (advisor: Gilles Bailly): Theophanis Tsandilas, examiner

Julien Casarin, Université de Strasbourg, “*Proposition d’un protocole web pour la collaboration multi-support en environnement 3D*” (advisor: Dominique Bechman): Michel Beaudouin-Lafon, president

Emmanouil Potetsianakis, Télécom ParisTech, “*Amélioration des applications vidéo grâce aux métadonnées temporelles*” (advisor: Jean Le Feuvre): Michel Beaudouin-Lafon, examiner

Maxime Garcia, Université Grenoble Alpes, Inria Rhones Alpes, “*Transfert d’animation : animer des personnages virtuels par le jeu et le mime*” (advisor: Rémi Ronfard): Sarah Fdili Alaoui, invited examiner

## **9.3. Popularization**

### **9.3.1. Articles and contents**

- Radio show “Les P’tits Bateaux” on France Inter public radio: Michel Beaudouin-Lafon (interviews in response to children questions on 5 May, 30 June, 18 August, 24 November 2019)

### **9.3.2. Education**

- Chapter about the Web in a textbook for high-school students: Michel Beaudouin-Lafon [36]

### **9.3.3. Interventions**

- Presentation of research work on dance movement during the dance show “Frame(d)”, at Micadance (25 May 2019) and SUAPS Paris-Sud (June 2019): Rivière Jean-Philippe
- Université Paris-Saclay Learning Center: art-science project with photographer Didier Goupy presenting the portraits of Ph.D students of Université Paris-Saclay. Ph.D. graduation ceremony, Université Paris-Saclay, June 2019; Fête de la Science, Gif-sur-Yvette, October 2019

## **ILDA Project-Team**

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events: Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- ACM CHI Steering Committee, ACM SIGCHI Conference on Human Factors in Computing Systems: Caroline Appert

#### 10.1.1.2. Member of the Organizing Committees

- IEEE VIS (IEEE Visualization Conference) 2019, 2020: Anastasia Bezerianos (Organization Committee - Workshops co-Chair)

### 10.1.2. Scientific Events: Selection

#### 10.1.2.1. Chair of Conference Program Committees

- CHI 2020, 38th ACM SIGCHI Conference on Human Factors in Computing Systems: Anastasia Bezerianos (SC - subcommittee chair)

#### 10.1.2.2. Member of the Conference Program Committees

- CHI 2020, 38th ACM SIGCHI Conference on Human Factors in Computing Systems: Caroline Appert, Emmanuel Pietriga
- IEEE VIS 2019, Visualization Conference (InfoVis): Anastasia Bezerianos
- TheWebConf (WWW) 2020, 29th Web Conference, research track Web Mining and Content Analysis: Emmanuel Pietriga
- ESWC 2020, 17th Extended Semantic Web Conference: Emmanuel Pietriga
- TheWebConf (WWW) 2019, 28th Web Conference, research track Web Content Analysis, Semantics, and Knowledge: Emmanuel Pietriga
- ESWC 2019, 16th Extended Semantic Web Conference: Emmanuel Pietriga
- EICS 2019, 11th ACM Symposium on Engineering Interactive Computing Systems, Tech Notes, Olivier Chapuis

#### 10.1.2.3. Reviewer

- ACM EICS 2020, SIGCHI Symposium on Engineering Interactive Computing Systems: Emmanuel Pietriga
- ACM CHI 2019, Conference on Human Factors in Computing Systems: Caroline Appert, Olivier Chapuis, Emmanuel Pietriga, Hugo Romat.
- ACM CHI 2020, Conference on Human Factors in Computing Systems: Olivier Chapuis, Vanessa Peña-Araya
- ACM UIST 2019, Interface Software and Technologies Symposium: Olivier Chapuis, Emmanuel Pietriga, Hugo Romat.
- ACM DIS 2019, Designing Interactive Systems: Caroline Appert
- ACM MobileHCI 2019, International Conference on Human-Computer Interaction with Mobile Devices and Services: Caroline Appert, Olivier Chapuis
- IEEE VIS 2019, Visualization Conference (InfoVis): Emmanuel Pietriga, Vanessa Peña-Araya (short papers)

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

- ACM ToCHI, Transactions on Computer-Human Interaction: Caroline Appert (associate editor)

#### *10.1.3.2. Reviewer - Reviewing Activities*

- ACM ToCHI, Transactions on Computer-Human Interaction: Olivier Chapuis
- IEEE TVCG, Transactions on Visualization and Computer graphics: Anastasia Bezerianos

### **10.1.4. Invited Talks**

- Caroline Appert: Lowering the cost of transitions between devices, Microsoft Research Faculty Summit, Seattle, USA, July 2019.
- Anastasia Bezerianos: Interactive visualizations and large displays, Indiana University, USA, December 2019.
- Olivier Chapuis: Multi-user interaction on wall displays, Public lectures on interactive design, Chalmers University, Göteborg, Sweden, November 2019.
- Emmanuel Pietriga: Créativité et visualisation de réseaux sous formes de diagrammes noeuds-liens, École d'été de cartographie et visualisation, Lyon, France, July 2019.

### **10.1.5. Scientific Expertise**

- Evaluator for NSERC Discovery Grants (Canada): Anastasia Bezerianos, Olivier Chapuis

### **10.1.6. Research Administration**

- Deputy Director of the Laboratoire de Recherche en Informatique (LRI): Olivier Chapuis
- President of Inria Saclay - Île de France's Commission for Technological Development (CDT): Emmanuel Pietriga
- Deputy head of Pôle "Données, Connaissances, Apprentissage et Interaction" at École Doctorale Paris Saclay (ED STIC): Caroline Appert
- Member of Conseil de Département (LRI): Anastasia Bezerianos
- Member of Commissions Consultatives de Spécialités d'Université (CCSU) at Université Paris-Sud/Paris Saclay: Anastasia Bezerianos

### **10.1.7. Learned societies**

- Association Francophone d'Interaction Homme-Machine (AFIHM), in charge of the relation with the SIF: Olivier Chapuis.
- SigCHI Paris Local Chapter, chair: Caroline Appert.

### **10.1.8. Hiring committees**

- MCF Hiring committee, Univ. Paris Sud - LIMSI: Caroline Appert
- MCF Hiring committee, Univ. Technologique Troyes - Tech-CICO: Caroline Appert

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

Ingénieur: Emmanuel Pietriga, Data Visualization (INF552), 36h, 3A/M1, École Polytechnique.

Ingénieur: Caroline Appert, Data Visualization (INF552), 18h, 3A/M1, École Polytechnique.

Ingénieur: Vanessa Peña-Araya, Data Visualization (INF552), 16h, 3A/M1, École Polytechnique.

Master: Emmanuel Pietriga, Data Visualization, 24h, M2 Informatique Décisionnelle, Univ. Paris-Dauphine.

Master: Caroline Appert, Evaluation of Interactive Systems (Advanced), 21h, M2 Interaction, Univ. Paris-Sud.

Master: Anastasia Bezerianos, Evaluation of Interactive Systems (Intro), 16h, M2 Interaction, Univ. Paris-Sud.

Master: Anastasia Bezerianos, Programming of Interactive Systems, 21h, M2 Interaction, Univ. Paris-Sud.

Master: Anastasia Bezerianos, Career Seminar, 21h, M2 Interaction, Univ. Paris-Sud.

Master: Anastasia Bezerianos, Augmented Reality and Tangible Interaction, 12h, M2 Interaction, Univ. Paris-Sud.

Master: Anastasia Bezerianos, Interactive Information Visualization, 10.5h, M2 Interaction, Univ. Paris-Sud.

Master: Anastasia Bezerianos, HCI Project, 21h, M2 Interaction and HCID, Univ. Paris-Sud.

Master: Anastasia Bezerianos, Intro aux Systèmes Interactives, 15h, M1 Informatique, Univ. Paris-Sud.

Master: Eugénie Brasier, Programming of Interactive Systems, 10h30, M2 Interaction and HCID, Univ. Paris-Saclay.

Master: Eugénie Brasier, Career Seminar, 10h30, M2 Interaction and HCID, Univ. Paris-Saclay.

Master: Emmanuel Courtoux, Fundamentals of HCI, 21h, M2 Interaction and HCID, Univ. Paris-Saclay.

Master: Emmanuel Courtoux, Digital Fabrication, 21h, M2 Interaction and HCID, Univ. Paris-Saclay.

Master: Raphaël James, Programming of Interactive Systems, 12h, Univ. Paris-Saclay.

Master: Raphaël James, Fundamentals of HCI, 21h, Univ. Paris-Saclay.

Master: Tong Xue, Design of Interactive Systems, 21h, Univ. Paris-Saclay.

Licence: Eugénie Brasier, Algorithmique, 18h, PeiP2, Polytech.

License: Raphaël James, Algorithm/C/C++, 2h, Polytech.

### 10.2.2. Supervision

PhD in progress : Emmanuel Courtoux, Tangible Collaborative Interaction for Wall-sized Displays, since October 2019, Advisors: Olivier Chapuis, Caroline Appert

PhD in progress : Eugénie Brasier, Interaction techniques for remote manipulation in multi-display environments, since October 2018, Advisors: Caroline Appert

PhD in progress : Raphaël James, Environnements de réalité physique et augmentée utilisés dans l'analyse visuelle collaborative, since October 2018, Advisors: Anastasia Bezerianos, Olivier Chapuis, Tim Dwyer

PhD in progress : Tong Xue, Interactive Visualization for Data Journalism, since October 2018, Advisors: Anastasia Bezerianos, Emmanuel Pietriga

PhD in progress : Marie Destandau, Interactive Visual Exploration of Webs of Data, since October 2017, Advisors: Emmanuel Pietriga

PhD (defended) : Anna Gogolou, Iterative and expressive querying for big data series, October 2016 - November 2019, Advisors: Anastasia Bezerianos, Themis Palpanas

PhD (defended [76]) : Hugo Romat, Visual exploration and interactive manipulation techniques for collections of heterogeneous data and documents, June 2016 - November 2019, Advisors: Caroline Appert, Emmanuel Pietriga

PhD Internship: Nicole Barbosa Sultanum (from University of Toronto), Navigation and exploration of multivariate and dynamic graphs, 3 months, Advisor: Anastasia Bezerianos

Master 2 Internship: Marzieh Rafiei, Wall displays in Virtual Reality, 6 months, Advisors: Olivier Chapuis

Master 2 Internship: Emmanuel Courtoux, Tangible interaction for wall displays, 6 months, Advisors: Olivier Chapuis, Caroline Appert

### 10.2.3. Juries

PhD: Thibault Raffailac, Université de Lille: Emmanuel Pietriga (examineur)

PhD: Yujiro Okuya, Université Paris-Sud: Caroline Appert (president)

PhD: Gaëlle Richer, Université de Toulouse: Caroline Appert (reviewer)

PhD: Khanh Duy Le, Chalmers University at Göteborg: Olivier Chapuis (reviewer)

## 10.3. Popularization

### 10.3.1. Articles and contents

- 2019-06-29: France 2 (TV) - 20h30 le samedi, Le premier pas sur la lune, <https://www.france.tv/france-2/20h30-le-samedi/1016245-le-premier-pas-sur-la-lune.html>
- 2019-06-12: Ciel & Espace - Sanctuary, le projet français qui vise à faire de la Lune un lieu de la mémoire humaine, <https://www.cieletespace.fr/actualites/sanctuary-le-projet-francais-qui-vise-a-faire-de-la-lune-un-lieu-de-la-memoire-humaine>
- 2019-05-13: France 2 (TV) - Télématin, Sanctuary (11'30-15'30), <https://www.france.tv/france-2/telematin/981641-telematin.html>
- 2019-04-22: France 3 (TV) - Soir 3, Humanité : la Lune comme sanctuaire, [https://www.francetvinfo.fr/sciences/espace/humanite-la-lune-comme-sanctuaire\\_3411135.html](https://www.francetvinfo.fr/sciences/espace/humanite-la-lune-comme-sanctuaire_3411135.html)
- 2019-03-29: Science & Avenir - Sanctuary : le projet fou d'envoyer un selfie ou sa dédicace sur la Lune, [https://www.sciencesetavenir.fr/espace/systeme-solaire/sanctuary-le-projet-fou-d-envoyer-un-temoignage-artistique-et-scientifique-sur-la-lune\\_122541](https://www.sciencesetavenir.fr/espace/systeme-solaire/sanctuary-le-projet-fou-d-envoyer-un-temoignage-artistique-et-scientifique-sur-la-lune_122541)
- 2019-03-18: Inria.fr - Sanctuary : une trace sur la Lune pour le cinquantième de la mission Apollo 11, <https://www.inria.fr/fr/sanctuary-pour-laisser-une-trace-sur-la-lune>
- 2019-03-16: Ouest France - Climat. Ce que les Français font déjà, ce qu'ils se déclarent prêts à faire (Storifier), <https://www.ouest-france.fr/politique/grand-debat-national/climat-ce-que-les-francais-ont-deja-ce-qu-ils-se-declarent-prets-faire-6264587>
- 2019-02-15: Métro parisien, La fresque du couloir de la station Montparnasse-Bienvenue (ZRaildar), <http://80ans.cnrs.fr/ressource/la-fresque/>

## **PETRUS Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Events: Organisation**

#### *9.1.1.1. Member of the Organizing Committees*

- Luc Bouganim: Co-organizer of Ecole thématique BDA Masses de Données Distribuées, Aussois, June 2020
- Iulian Sandu Popa: Colloque National Capteurs et Sciences Participatives (CASPA), Paris, 1-4 avril 2019

### **9.1.2. Scientific Events Selection**

#### *9.1.2.1. Member of the Conference Program Committees*

- Nicolas Anciaux: VLDB'19, SIGMOD'19
- Luc Bouganim: EDBT'2020
- Philippe Pucheral: DATA'19, MOBILITY'19, MEDES'19
- Iulian Sandu Popa: ICDE'20, SSDBM'19, IEEE MobileCloud'19, DATA'19, BDA'19 demo
- Guillaume Scerri: BDA'19

### **9.1.3. Journal**

#### *9.1.3.1. Member of the Editorial Boards*

- Nicolas Anciaux: Associate Editor of the VLDB Journal

#### *9.1.3.2. Reviewer - Reviewing Activities*

- Iulian Sandu Popa: Journal of Internet Services and Applications
- Guillaume Scerri: ACM Transactions on Privacy and Security

### **9.1.4. Research Administration**

- Philippe Pucheral: Member of the HDR committee of the STV doctoral school (UVSQ) since 2014
- Philippe Pucheral: Member of the steering committee of the ED STIC doctoral school of University Paris-Saclay, 'Data, Knowledge and Interactions' committee (about 250 PhD students) since 2014
- Philippe Pucheral: Member of the bureau of the DAVID lab board since 2016
- Nicolas Anciaux: Member of the Council of the Doctoral College of the University Paris-Saclay
- Nicolas Anciaux: Member of the "Bureau du comité des projets" at Inria saclay
- Nicolas Anciaux: Member of the DATAIA Convergence Institute Program Committee since 2018.
- Nicolas Anciaux: Correspondent for the Doctoral school ED STIC of University Paris-Saclay at Inria Saclay
- Nicolas Anciaux: Responsible for the 'Mission Jeunes Chercheurs' (MJC) at Inria Saclay
- Nicolas Anciaux: Responsible for the 'Formation par la Recherche' (FPR) at Inria Saclay
- Nicolas Anciaux: Member of the bureau of the DAVID lab board
- Luc Bouganim: Member of the Scientific Commission (CS) of Inria Saclay-IDF (Cordi-S, Post-Doc, Delegation)
- Luc Bouganim: Member of the Commission for Technological Development (CDT) of Inria Saclay-IDF

- Luc Bouganim: Member of the admission committee for DR2 at Inria
- Luc Bouganim: Member of the recruitment committee for CRCN at Inria
- Luc Bouganim: Member of the recruitment committee of associate professor at ITU Copenhagen
- Iulian Sandu Popa: Member of the Commission for Technological Development (CDT) of Inria Saclay-IDF
- Iulian Sandu Popa: Member of the recruitment committee for an MCF (Maître de Conférences) position at CNAM
- Iulian Sandu Popa: PhD thesis referent for the ED STIC doctoral school of University Paris-Saclay
- Guillaume Scerri: PhD thesis referent for the ED STIC doctoral school of University Paris-Saclay

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Licence : Iulian Sandu Popa, Bases de données (niveau L3), 96, UVSQ, France. Guillaume Scerri, Initiation aux bases de données (niveau L2), 63, UVSQ, France. Guillaume Scerri, Fondements de l'informatique (niveau L1), 36, UVSQ, France. Guillaume Scerri, Théorie des Langages (niveau L2), 45, UVSQ, France.
- Master : Iulian Sandu Popa, Bases de données relationnelles (niveau M1), Gestion des données spatiotemporelles (niveau M2), Sécurité des bases de données (niveau M2), 96, UVSQ, France. Philippe Pucheral, responsable of the DataScale master, courses in M1 and M2 in databases and in security, introductory courses for jurists, UVSQ, France. Guillaume Scerri, Bases de données relationnelles (niveau M1), 36, UVSQ, France. Guillaume Scerri, Sécurité et bases de données pour juristes, 4.5, UVSQ, France. Guillaume Scerri, Sécurité, 18, UVSQ, France.
- Engineers school : Nicolas Anciaux, courses on Databases (module IN206, niveau M1), 21, and Advanced databases (module ASI13, niveau M2), 24, at ENSTA ParisTech. Nicolas Anciaux, Systèmes d'Information "privacy by design" (niveau M1), 30, at ENSIIE Evry, France. Luc Bouganim, Systèmes d'Information "privacy by design" (niveau M1), 42, ENSIIE Evry, France. Luc Bouganim, Bases de données relationnelles (niveau M1), 32, ENSTA, France.

### 9.2.2. Supervision

- PhD : Julien Loudet, Distributed and Privacy-Preserving Personal Queries on Personal Clouds, UVSQ, October 2019, Luc Bouganim and Iulian Sandu Popa
- PhD: Axel Michel, Secure Distributed Computations, INSA CVL, April 8, 2019, Benjamin Nguyen and Philippe Pucheral
- PhD in progress: Riad Ladjel, Secure Distributed Computation for the Personal Cloud, October 2016, Nicolas Anciaux, Philippe Pucheral and Guillaume Scerri
- PhD in progress: Dimitris Tsoulovos, Privacy-by-design Middleware for Urban-scale Mobile Crowd-sensing, April 2017, Nicolas Anciaux and Valérie Issarny (Inria Mimove)
- PhD in progress: Robin Carpentier, Secure and efficient data processing in trusted execution environments for the personal cloud, October 2018, Nicolas Anciaux, Iulian Sandu Popa and Guillaume Scerri

### 9.2.3. Juries

- Nicolas Anciaux : Jury Member of the PhD of Rémy Delanaux (University Lyon I)
- Philippe Pucheral : President of the PhD jury of Karima RAFES (Paris-Saclay University, 25/01/2019)
- Philippe Pucheral : President of the PhD jury of Duc CAO (Paris-Saclay University, 26/09/2019)

### 9.3. Popularization

- Nicolas Anciaux: “Sécurité des données personnelles, démonstration de la box ‘DomYcile’ développée par PETRUS et Hippocad pour le département des Yvelines, Journées du Patrimoine 2019 à l’Inria Rocquencourt, Sept. 2019.
- Nicolas Anciaux: Demonstration of the ‘DomYcile’ home-box, Inria stand, European Big Data Value Forum (EBDVF19), organized by BDVA in collaboration of the European Commission, Oct. 2019.
- Round table on ”Personal Dataspaces” at European Big Data Value Forum (EBDVF19), organized by BDVA in collaboration of the European Commission, Oct. 2019. The round table is chaired by Marko Turpeinen (Director EIT Digital Finland). Intervention of N. Anciaux about ”Empowerment and Big Data on personal data: from data portability to personal agency”.
- Nicolas Anciaux: séminaire LINC à la CNIL. "Solutions de cloud personnel : sécurité, vie privée, et perspectives", Nov. 2019.
- Nicolas Anciaux: “PETRUS : Cloud personnel de confiance et gestion de nos données”, Café des Sciences d’Inria, site de Rocquencourt, 11 juin 2019
- N. Anciaux: Panel on ”European Data Protection Law”, 10th Annual Forum of Trans Europ Expert ‘Le droit de l’Union européenne vu d’ailleurs’, Conseil Supérieur du Notariat, Paris. April 2019. Round table chaired by J. Sénéchal (Dir. pôle “Droit des contrats” at TEE) and N. Martial-Braz (Dir. pôle “Droit de la propriété intellectuelle at TEE), with B. Amaudric du Chaffaut (Deputy General Counsel at Google France) on GDPR evolution in Europe, F. Nicola (Prof. at Washington College of Law) on the echo of GDPR in California and N. Anciaux (researcher at Inria) on technical-juridical challenges of the GDPR.