RESEARCH CENTER
Rennes - Bretagne-Atlantique

FIELD

Activity Report 2019

Section Dissemination

Edition: 2020-03-21

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

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Organisation

8.1.1.1. General Chair, Scientific Chair

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

8.1.1.2. Member of the Organizing Committees

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

8.1.2. Scientific Events: Selection

8.1.2.1. Chair of Conference Program Committees

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

8.1.2.2. Member of the Conference Program Committees

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

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

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

8.1.4. Invited Talks

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

- O. Sentieys gave a Keynote at the IEEE International Nanodevices and Computing (INC) - IEEE International Conference on Rebooting Computing (ICRC), Grenoble, France, April 2019 on "Playing with numbers for Energy Efficiency: Introduction to Approximate Computing" [21].
- O. Sentieys gave a tutorial at the 22nd IEEE/ACM Design, Automation and Test in Europe (DATE), March 2019 on "A Comprehensive Analysis of Approximate Computing Techniques: From Component- to Application-Level" [47].
- D.Chillet gave a talk during GDR SoC2 and RO topic day, in november 2019 on "Mathematics model for wavelength allocation in the context of Optical NoC".
- D. Chillet gave an invited talk at FETCH (École d'hiver Francophone sur les Technologies de Conception des Systèmes embarqués Hétérogènes), Louvain-la-Neuve, Belgique, January 2019 on "Power management for communications on Optical NoC".

8.1.5. Leadership within the Scientific Community

- E. Casseau is a member of the French National University Council in Signal Processing and Electronics (CNU - Conseil National des Universites, 61ème section) since 2018.
- D.Chillet is a member of the French National University Council in Signal Processing and Electronics (CNU - Conseil National des Universites, 61ème section) since 2019.
- D. Chillet is member of the Board of Directors of Gretsi Association.
- D. Chillet is co-animator of the "Connected Objects" topic of GDR SoC^2.
- F. Charot and O. Sentieys are members of the steering committee of a CNRS Spring School for graduate students on embedded systems architectures and associated design tools (ARCHI).
- O. Sentieys is a member of the steering committee of GDR SoC^2.
- O. Sentieys is an elected member of the Evaluation Committee (CE) of Inria.

8.1.6. Scientific Expertise

- O. Sentieys served as an expert for Fund for Scientific Research – FNRS, Belgium.
- D.Chillet served as an expert for the call CAPES-COFECUB 2020.
- D.Chillet served as an expert for German Research Foundation.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching Responsibilities

- E. Casseau is in charge of the Department of "Digital Systems" at ENSSAT Engineering Graduate School.
- D. Chillet was the responsible of the ICT Master of University of Science and Technology of Hanoi.
- C. Killian was the responsible of the second year of the "Instrumentation" DUT at IUT, Lannion until July 2019.
- O. Sentieys is responsible of the "Embedded Systems" major of the SISEA Master by Research.
- C. Wolinski was the Director of ESIR until May 2019.

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

8.2.2. Teaching

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

8.2.3. Supervision

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

8.3. Popularization

8.3.1. Articles and contents

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

8.3.2. Interventions

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

CELTIQUE Project-Team

6. Dissemination

6.1. Promoting Scientific Activities

6.1.1. Scientific Events: Organisation

6.1.1.1. Member of the Conference Program Committees

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

6.1.1.2. Reviewer

- Frédéric Besson: TACAS

6.1.2. Journal

6.1.2.1. Reviewer - Reviewing Activities

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

6.1.3. Invited Talks

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

6.1.4. Leadership within the Scientific Community

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

6.1.5. Scientific Expertise

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

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

6.1.6. Research Administration

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

6.2. Teaching - Supervision - Juries

6.2.1. Teaching

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6.2.2. Supervision

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6.2.3. Juries

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6.3. Popularization

6.3.1. Interventions

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

CIDRE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

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

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

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

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

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

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

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

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

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

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

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

9.1.1.2. Member of the Organizing Committees

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

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

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

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

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

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

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

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

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

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

9.1.2.2. Member of the Conference Program Committees

Ludovic Mé served the Scientific Committee of the FIC 2020.

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

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

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

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

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

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

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

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

9.1.3.2. Reviewer - Reviewing Activities

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

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

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

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

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

9.1.4. Invited Talks

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

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

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

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

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

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

9.1.5. Scientific Expertise

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

9.1.6. Research Administration

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

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

In these institutions,

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

The teaching duties are summed up in table 1 .

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

Figure 1.

9.2.2. Supervision

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

9.2.2.1. Supervision of external PhD candidates

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

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

9.2.3. Juries

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

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

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

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

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

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

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

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

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

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

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

9.3. Popularization

9.3.1. Articles and contents

- In books/journals for the general public

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

- Online publications

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

- White Papers - white Papers for Popularization

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

9.3.2. Interventions

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

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

DIONYSOS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

We are organizing the mini-symposium entitled "Probabilistic approaches for studying blockchain dynamics" of the 8th European Congress of Mathematics, 5 - 11 July 2020, Portorož, Slovenia This mini-symposium aims at bringing together international researchers active on blockchain analysis, and allowing the interaction between different expertises: Markov chain, game theory, fluid limits as well as on different types of stochastic processes. It also aims at gather mathematicians using a theoretical approach to analyze blockchain with those characterizing blockchains through simulations or numerical techniques, and thus it will encourage new collaborations.

10.1.1.1. General Chair, Scientific Chair

- Yassine Hadjadj-Aoul was the General Chair for the *The 6th International Conference on Information and Communication Technologies for Disaster Management (ICT-DM'2019)*, Co-sponsored by IEEE, in Paris (France), December 2019.

10.1.1.2. Member of the Organizing Committees

- Gerardo Rubino and Bruno Tuffin are members of the Steering Committee of the International Workshop on Rare Event Simulation (RESIM) and of Monte Carlo Method Conference (MCM) series.

- Yassine Hadjadj-Aoul is member of the Steering Committee of the International Conference on Information and Communication Technologies for Disaster Management (ICT-DM). He is co-chairing the Steering Committee since 2016.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Bruno Tuffin was TPC co-chair of the 14th Workshop on the Economics of Networks, Systems and Computation (NetEcon 2019), June 2019, Phoenix, AZ, USA.

- Yassine Hadjadj-Aoul was TPC co-chair of *The 11th Wireless Days Conference (WD'2019*, Co-sponsored by IEEE, Manchester, April 2019, Manchester, UK.

- Yassine Hadjadj-Aoul was TPC track chair of the "Satellites IoT and M2M Networks" track, for *The 2nd International Conference on Smart Communications and Networking (SmartNets 2019)*, Co-sponsored by IEEE, December 2019, Sharm El Sheik, Egypt.

- Yassine Hadjadj-Aoul was TPC track chair of the "Cloud & Fog Computing" track, for *International Symposium on Networks, Computers and Communications (ISNCC 2019)*, Co-sponsored by IEEE, June 2019, Istanbul, Turkey.

10.1.2.2. Member of the Conference Program Committees

Bruno Tuffin was TPC member of the following conferences:

- ValueTools 2019, Palma de Mallorca, Spain, March 12-15, 2019

- First IEEE Workshop on the ECOnomics of Fog, Edge, and Cloud Computing (ECOFEC 2019), in conjunction with IEEE INFOCOM 2019, Paris, France

- IEEE International Conference on Communications (IEEE ICC 2019), May 20-24 2019, Shanghai, China.

- 12th International Conference on Monte Carlo Methods and Application (MCM 2019), Sydney, Australia, July 8-12, 2019.
- 31th International Teletraffic Congress (ITC 31), 27-29 August 2019, Budapest, Hungary.
- The International Symposium on Ubiquitous Networking (UNet'19), September 16-19, 2019, Limoges, France.
- GECON 2019 - 16th International Conference on Economics of Grids, Clouds, Software, and Services, Leeds, UK, 17-29 Sept. 2019
- The 2019 IEEE 2nd 5G World Forum (5GWF'19), Dresden, Germany, Sept 30-Oct 2, 2019.
- Financial Risk Track, Winter Simulation Conference (WSC'19), National Harbor, MD, USA, December 8-11, 2019.

Patrick Maillé was TPC member of the following conferences:

- ACM MobiHoc 2019, 20th International Symposium on Mobile Ad Hoc Networking and Computing, Catania, Italy, July 2-5, 2019
- IFIP WIOPT 2019, 17th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks, Avignon, France, June 3–7, 2019
- IEEE International Conference on Communications (IEEE ICC 2019), May 20-24 2019, Shanghai, China.
- Algotel 2019, Narbonne, France, June 3-7, 2019
- NetEcon 2019, 14th workshop on the Economics of Networks, Systems and Computation, Phoenix, AZ, USA, June 28, 2019
- GIIS 2019, Global Information Infrastructure Symposium, Paris, France, December 18-20, 2019
- AdHoc-Now 2019, 18th International Conference on Ad Hoc Networks and Wireless, Luxembourg, October 1-3, 2019
- ValueTools 2019, Palma de Mallorca, Spain, March 12-15, 2019

Yann Busnel was a member of the program committee of the following events:

- NCA 2019: 18th IEEE International Symposium on Network Computing and Applications, Boston, USA, September 2019.
- AdHoc Now 2019: 18th International Conference on Ad Hoc Networks and Wireless, Luxembourg, October 2019.

Bruno Sericola was TPC member of the following conference:

- ASMTA 2019 : 25th International Conference on Analytical and Stochastic Modelling Techniques and Applications, Moscow, Russia, October 23 — 25, 2019.

Yassine Hadjadj-Aoul was a member of the program committee of the following events (partial list):

- IEEE Globecom 2019 - IEEE Global Communications Conference, Waikoloa, HI, USA, December 9-13, 2019.
- IEEE ICC 2018 - IEEE International Conference on Communications, Shanghai, China, MO, USA, May 20-24, 2019.
- IEEE WCNC 2019 - IEEE Wireless Communications and Networking Conference, Marrakech, Morocco, April 15-19, 2019.
- IEEE CCNC 2019 - IEEE Consumer Communications & Networking Conference, Las Vegas, USA, January 11-14, 2019.
- IEEE MASCOTS - 2019 - IEEE conference on "Modeling, Analysis, and Simulation On Computer and Telecommunication Systems", Rennes, France, October 22-25, 2019.

Gerardo Rubino was or is a member of the Program Committee of the following events:

- QEST: 16th International Conference on Quantitative Evaluation of SysTems, Glasgow, Scotland, Sep. 2019.
- e-Health: 7th International workshop of e-Health Pervasive Wireless Applications and Services, Lyon, France, Oct. 2019.
- MASCOTS: 28th IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems, Nice, France, Nov. 2020.
- ICN: 19th International Conference on Networks, Lisbon, Portugal, Feb. 2020.

10.1.2.3. Reviewer

Yann Busnel, Bruno Tuffin, Bruno Sericola, Yassine Hadjadh-Aoul, Gerardo Rubino, and César Viho served as reviewers for several major international conferences.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Bruno Tuffin serves as

- Area Editor (simulation): INFORMS Journal on Computing, since Jan. 2015.
- Associate Editor: ACM Transactions on Modeling and Computer Simulation, since July 2009.

Patrick Maillé serves as

- Associate Editor: Electronic Commerce Research and Applications (Elsevier), since April 2019.
- Associate Editor: IEEE Open Journal of Communications Society, since July 2019.

Bruno Sericola serves as associate editor for the following journals:

- International Journal of Stochastic Analysis, since April 2010.
- Performance Evaluation, since April 2015.

Bruno Sericola is Editor in Chief of the books series "Stochastic Models in Computer Science and Telecommunications Networks", ISTE/WILEY, since March 2015.

Yassine Hadjadj-Aoul was a guest editor of a special issue on: "Emerging topics in wireless communications for future smart cities" for the MDPI International Journal.

Gerardo Rubino is Associate Editor of the Journal of Dynamics & Games, https://www.aimsciences.org/journal/2164-6066.

10.1.3.2. Reviewer - Reviewing Activities

- Yann Busnel served as a reviewer for several major international journals such as TPDS (IEEE Transactions on Parallel and Distributed Systems).
- Bruno Sericola, Bruno Tuffin and Gerardo Rubino served as reviewers for several major international journals.
- Yassine Hadjadj-Aoul served as a reviewer for several major international journals such as: IEEE Journal On Selected Area of Communication *JSAC* "Series on Network Softwarization & Enablers", IEEE Transaction on Vehicular Technologies *TVT*, IEEE Communication Letters, IEEE Transaction on Mobile Computing *TMC*, IEEE Access, Elsevier Future Generation Computer Systems *FGCS*, Journal of Network and Computer Applications *JNCA*.

10.1.4. Invited Talks

Bruno Tuffin gave the following invited talks:

- B. Tuffin. Rare-Event Simulation of Regenerative Systems, Peking University, China, October 10, 2019.
- B. Tuffin. Monte Carlo Simulation and Rare Event Estimation, Mathematical and computational modeling of rare events in complex systems, Recife, Brazil, November 18-20, 2019.

Yann Busnel made several invited and keynote talks in 2019:

- *Blockchain Technology : Synchronization, Consensus and Token Economy*. Cycle of seminars as Invited Professor at VJTI Mumbai, India, September 2019.

- *The need for enlightened sampling in the supervision of large-scale networks*. Keynote at the International Conference on Data Sciences and Engineering, IIT Patna, India, September 2019

- *Large-scale data streaming*. Invited seminar at FEIT, University of Technology Sydney, Australia, August 2019

- *Le besoin d'échantillonnage avisé dans la supervision de réseaux à grande échelle*. Invited seminar at Laboratoire I3S de Sophia-Antipolis, France, April 2019

- *Blockchain opportunities in Europe & Diploma certification using the blockchain @ IMT Atlantique*. Invited talk at International workshop on Blockchain for Global Good, VJTI Mumbai, India, March 2019

- *Le besoin d'échantillonnage avisé dans la supervision de réseaux à grande échelle*. Invited seminar at Laboratoire d'Informatique de Grenoble, France, January 2019.

Yassine Hadjadj-Aoul made several invited and keynote talks in 2019:

- *Reliable Network Function Placement using Evolutionary Algorithms*. Invited tutorial during the 8th IEEE International Conference on Smart Communications in Network & Technologies (SaCoNet), Oran, Algeria, Dec. 2019

- *Virtual Network Function Forwarding Graph Embedding in 5G and post 5G Networks*. Invited Keynote during the 8th IEEE International Conference on Smart Communications in Network & Technologies (SaCoNet), Oran, Algeria, Dec. 2019

- *Efficient support of the upcoming Massive number of IoT devices & in future wireless networks*. Invited talk during the national seminar, SEOC Day, on Embedded Systems and Communicating Objects, Paris France, April 2019

Gerardo Rubino made several invited and keynote talks in 2019:

- *Training recurrent Random Neural Networks: first and second-order techniques, reservoir models, numerical aspects*. Invited talk at ISCIS'19, Conference on Modelling Methods in Computer Systems, Networks and Bioinformatics, Polish Academy of Sciences, Paris, Oct. 15–16, 2019.

- *Relations between irreducible and absorbing Markov chains*. Invited talk at the Fall Western Sectional Meeting of the AMS, Riverside, California, November 9–10, 2019.

- *Rare event analysis in technological catastrophes*. Keynote at the 6th International Conference on Information and Communication Technologies for Disaster Management (ICT-DM), Paris, December 18–20, 2019.

Gerardo Rubino gave a seminar at the Computer Science Department of the UDELAR, in Nov. 2019, about Network Tomography. He also gave a 3 hours-tutorial on dependability analysis at the University Adolfo Ibáñez, Santiago, Chile, in Jan. 2019.

10.1.5. Leadership within the Scientific Community

- Bruno Tuffin is an elected member of I-sim council of Informs society, 2018-2020.

- Yann Busnel is a member of the CSV (the technical committee) of the Images and Networks Cluster of Brittany, France.

- Yann Busnel is a member of the Steering Committee of the RESCOM research group at GDR CNRS RSD.

- Yassine Hadjadj-Aoul is a founding member of Special Interests Group "IEEE Sig on Big Data with Computational Intelligence" under the IEEE COMSOC Big Data TC (Since June 2017).

- Yassine Hadjadj-Aoul is a member of the scientific committee of GT ARC (Automatique et Réseaux de Communication) scientific committee (since Nov. 2017).

- Gerardo Rubino belongs to the CSV (the technical committee) of the Images and Networks Cluster of Brittany, France, since its foundation.
- Gerardo Rubino is the coordinator of the research action "Analytics and machine learning", in collaboration with Nokia Bell Labs.

10.1.6. Research Administration

- Yann Busnel is Head of « Network System, Cybersecurity and Digital law » Research Department at IMT Atlantique (2017–*).
- Yann Busnel is Head of « Network, Telecommunication and Services » Research Department (D2) at IRISA (2019–*).
- Bruno Sericola is responsible for the Inria Rennes-Bretagne Atlantique budget.
- Bruno Sericola is the leader of the research group MAPI (Math Appli Pour l'Info) the goal of which is to improve the collaboration between computer scientists and mathematicians.
- Bruno Sericola is member of the research commission of the academic council of University of Rennes 1.
- César Viho is member of the HdR commission of the scientific council of Université Rennes 1.
- César Viho is the director of the MathSTIC doctoral school of Université Bretagne Loire.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: Bruno Tuffin, MEPS (probablility, queuing systems, simulation) , 35 hours, M1, University of Rennes 1, France

Master: Bruno Tuffin, GTA (Game Theory and Applications), 15 hours, M2, University of Rennes 1, France

MOOC on Queuing Theory, available on EdX: Patrick Maillé (in charge of one week of class)

IMT Atlantique 1st year: Yann Busnel, Wireless Autonomous Robot Swarm, 9 hours.

IMT Atlantique 3rd year: Yann Busnel, Big Data and Stream Processing, 9 hours.

Licence: Bruno Sericola, Mathematics, 14h, L2, IUT/University of Rennes 1, France.

Master: Bruno Sericola, Mathematics, 12h, M2, Istic/University of Rennes 1, France.

Master: Bruno Sericola, Logistic and performance, 12h, M2, Faculté de sciences économiques, Univ of Rennes 1, France

Master: Bruno Sericola, MEPS (performance evaluation), 36h, M1, Univ Rennes, France

Master M1: César Viho, Networks:Rennes 1 from Services to protocols, 36 hours, Istic/University of Rennes 1, France

Master M2: César Viho, Algorithms on graphs, 40 hours, Istic/University of Rennes 1, France

Bachelor L2: César Viho, Network architecture and components, 16 hours, Istic/University of Rennes 1, France

Master, 2nd year: Yassine Hadjadj-Aoul, Scalable Network Infrastructure (SNI), 10 hours, The Research in Computer Science (SIF) master and EIT Digital Master/University of Rennes 1, France

Master, pro 2nd year: Yassine Hadjadj-Aoul, Multimedia streaming over IP (MMR), 48 hours, Esir/University of Rennes 1, France

Master, pro 2nd year: Yassine Hadjadj-Aoul, Multimedia services in IP networks (RSM), 29 hours, Esir/University of Rennes 1, France

Master, pro 2nd year: Yassine Hadjadj-Aoul, Software Defined Networks, 6 hours, Istic/University of Rennes 1, France

Master, 2nd year: Yassine Hadjadj-Aoul, Video streaming over IP, 8 hours, Istic/University of Rennes 1, France

Master: Yassine Hadjadj-Aoul, Introduction to networking (IR), 26 hours, Esir/University of Rennes 1, France

Master: Yassine Hadjadj-Aoul, Mobile and wireless networking (RMOB), 20 hours, Esir/University of Rennes 1, France

Master 2nd year: Yassine Hadjadj-Aoul, Overview of IoT technologies: focus on LPWAN, 2 hours, INSA, France

Sofiene Jelassi is the manager of the master program "Heterogeneous Networks and Systems", Istic/University of Rennes 1, France

Master pro 2nd year: Sofiene Jelassi, Supervision of heterogeneous networks, 32 hours, Istic/University of Rennes 1, France

Master pro 2nd year: Sofiene Jelassi, Cloud & SDN virtualization, 32 hours, Istic/University of Rennes 1, France

Master pro 2nd year: Sofiene Jelassi, Multimedia networks, 32 hours, Istic/University of Rennes 1, France

Bachelor L1: Sofiene Jelassi, Programming Algorithms, 12 hours, SPM/University of Rennes 1, France

Master, 2nd year: Gerardo Rubino, Scalable Network Infrastructure (SNI), 10 hours, The Research in Computer Science (SIF) master and EIT Digital Master/University of Rennes 1, France

Supelec Rennes 3rd year: Gerardo Rubino, Dependability Analysis, 15 hours.

Master 2nd year: Gerardo Rubino, Quality of Experience, 2×4 hours (two different groups of students), Esir/University of Rennes 1, France

Esir/University of Rennes 1, 1st year, Graph theory and algorithms, 20 hours.

10.2.2. Supervision

PhD in progress: Ximun Castoreo, Measurements to check network neutrality, University of Rennes 1, Started 10/2018, supervised by Bruno Tuffin.

PhD in progress: Ayman Chouayakh, Auctions for spectrum allocations in 5G, CIFRE Thesis with Orange Labs/University of Rennes 1, Started 03/2017, supervised by Patrick Maillé.

PhD in progress: Hiba Dakdouk, Multi-player multi-armed bandit problems and applications in IoT, CIFRE Thesis with Orange Labs/University of Rennes 1, Started 01/2019, supervised by Patrick Maillé.

PhD in progress: Vasile Cazacu, "Calcul distribué pour la fouille de données cliniques", IMT Atlantique. Advisors: E. Anceaume (CNRS Rennes), Y. Busnel and M. Cuggia (PUPH, CHU Rennes). Defense in 2020.

PhD in progress: Jérôme Henry, "Indoor localization using the most recent standards of 802.11", IMT Atlantique. Advisors: N. Montavont (IMT Atlantique), Romaric Ludinard (IMT Atlantique), Y. Busnel (IMT Atlantique). Defense in 2021.

PhD in progress: Anouar Rkhami, "Data analytics for optimized resources' management in future 5G networks"; started on Oct. 2018; Advisors: Gerardo Rubino and Yassine Hadjadj-Aoul, and Abdelkader Outtagarts, Inria – Nokia Bell labs.

PhD in progress: Imane Taibi, "Big data analysis for network monitoring and troubleshooting"; started on Nov. 2017; Advisors: Gerardo Rubino, Chadi Barakat and Yassine Hadjadj-Aoul, Inria.

PhD in progress: Ali Hodroj, Enhancing content delivery to multi-homed users in broadband mobile networks, started in November 2015; supervisors: Bruno Sericola, Marc Ibrahim and Yassine Hadjadj-Aoul, University Rennes 1 and St Joseph University of Beyrouth.

PhD in progress: Mohamed Rahali, "Machine learning-based monitoring and management for hybride SDN networks"; started on Oct. 2017; Advisors: Gerardo Rubino, Inria, and Jean-Michel Sanner, B-COM.

Post-doc in progress: Noël Gillet, "Analyse de flux de données large-échelle pour les données massives en santé", IMT Atlantique. Advisor: Y. Busnel. October 2018-September 2019.

Post-doc in progress: Frédérique Robin, Modelling the dynamic behaviour of blockchains and analyzing their performance, Inria Rennes. Supervisors: Bruno Sericola and Emmanuelle Anceaume from team Cidre.

PhD: Corentin Hardy, Contribution to the development of deep learning in distributed systems, Defense in April 2019. Supervisors: Bruno Sericola and Erwan Le Merrer from Technicolor.

PhD: Jean-Michel Sanner; Cifre Grant, Orange Labs, "SDN technologies for network services performances adaptation of carriers networks", Defense in July 2019. Supervisors: Yassine Hadjadj-Aoul and Gerardo Rubino.

PhD: Hamza Ben Ammar, "Network and cache resources optimization for efficient media content delivery in CCN", Defense in March 2019; advisors: Yassine Hadjadj-Aoul, Gerardo Rubino and Soraya Ait Chellouche, University Rennes 1 [12].

PhD: Laura Aspirot, "Fluid Approximations for Stochastic Telecommunication Models", University of the Republic, Uruguay. Advisors: E. Mordecki (Uruguay) and G. Rubino (France). Defended on November 21, 2019, [11].

PhD: Jorge Graneri, "Semantic cognition - A mathematical approximation.", University of the Republic, Uruguay. Advisors: E. Mizraji (Uruguay) and G. Rubino (France). Defended on November 22, 2019, [13].

PhD in progress: Illyyne Saffar, "Personalization for Cognitive Autonomic Networks in 5G"; started on Feb. 2017; Advisors: César Viho (Université Rennes 1) and Kamal Deep-Singh (UJM Saint-Etienne) and Marie Line Alberi-Morel (Nokia Bell labs), Université Rennes 1 and Nokia Bell labs. Defense in June 2020.

10.2.3. Juries

Gerardo Rubino was one of the reviewers of the PhD of Fetia Bannour, Software Defined Networking: Extending SDN control to large-scale networks, University of Paris-East, Paris, Nov. 19, 2019.

Bruno Tuffin was rapporteur for the PhD of Wael Labidi, Smart grid-aware radio engineering in 5G mobile networks. Université de Paris-Saclay, Télécom SudParis, March 2019.

Patrick Maillé was a member of the PhD jury of Lilian Besson, Multi-Players Bandit Algorithms for Internet of Things Networks, Supelec Rennes, November 2019

Yann Busnel was rapporteur of the PhD defense committee of Abderrahmen Kammoun, Université Jean Monnet, Saint- Etienne, July 2019.

Yassine Hadjadj-Aoul was a member of the PhD jury of Ghada Moualla, Resilient Virtualized Network Functions for Data Centers and Decentralized Environments, Côte d'Azur University, September 2019

Bruno Sericola was member of the final selecting board for the recruitment of CNRS researchers in 2019.

César Viho was President of the HDR jury of Geraldine Texier, Vers un Internet programmable offrant des garanties de qualité de service, IMT-Atlantique Rennes, December 2019.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Yann Busnel is member of Development Council of Computer Sciences Master at Université de Nantes (2017–*).

10.3.2. Interventions

G. Rubino makes regular presentations to high school students about the research work in general, and specific technical topics in particular. Current talks:

- Randomness as a tool
- Internet as a research problem
- Great challenges in maths: the Riemann Hypothesis
- Great challenges in math/computer science: the "P versus NP" problem

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

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Mathieu Acher was the program committee co-chair of the 14th International Working Conference on Variability Modelling of Software-Intensive Systems (VaMoS)

9.1.1.2. Member of the Organizing Committees

Olivier Barais was the financial chair of the IEEE Mascots conference.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Mathieu Acher organized the Fourth international workshop on software product line teaching (SPLTea 2019).
- Mathieu Acher organized the First international workshop on languages for modelling variability (MODEVAR 2019).
- Mathieu Acher organized the Seventh international workshop on reverse variability engineering (REVE 2019).
- Mathieu Acher organized the 3rd ACM SIGSOFT International Workshop on Machine Learning Techniques for Software Quality Evaluation, MaLTeSQuE@ESEC/SIGSOFT FSE 2019.

9.1.2.2. Member of the Conference Program Committees

Jean-Marc Jézéquel:

- PC member for SPLC 2019 Industry Track
- PC member for SEAMS 2019
- PC member for ICSE 2020

Olivier Barais:

- PC member for the 17th International Conference on Software Engineering and Formal Methods (SEFM 2019)
- PC Member for CIEL 2019
- PC Member for VaMoS 2019
- PC Member for VoSE 2019
- PC Member for SAC 2019, SATTA track - Software Architecture: Theory, Technology, and Applications
- PC Member for CCgrid 2020

Djamel E. Khelladi:

- PC member for Poster track at MODELS 2019
- PC member for REVE workshop 2019
- PC member for Models and Evolution (ME) Workshop 2019
- PC member for WETICE 2019 Validating Software for Critical Systems Track

Arnaud Blouin:

- PC member for SAC'2020
- PC member for PACM EICS Q4 2019
- PC member for Workshop on Human Factors in Modeling at MODELS'2019 (HuFaMo), 2019

Mathieu Acher:

- PC member for SPLC 2019 Research Track
- PC member for ICSE SEIP 2020
- PC member for VaMoS 2019

Benoit Combemale:

- PC chair (Foundation track) for ECMFA 2019
- PC member for ICMT'19
- Selection Committee member for the Doctoral Symposium at MODELS'19
- PC member for the MLE'19 workshop at MODELS'19
- PC member for the DevOps@MODELS'19 workshop at MODELS'19
- PC member for the FlexMDE'19 workshop at MODELS'19
- PC member for the PNSE'19 workshop

9.1.2.3. Reviewer

Olivier Barais: MASCOTS 2019, ICSE 2019, ASE 2019
Arnaud Blouin: ICSE 2019, ISSTA 2019
Johann Bourcier: SEAA 2019
Mathieu Acher: TSE 2019, JSS 2019, ICSE 2019

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Jean-Marc Jézéquel:

- Associate Editor in Chief of SOSYM
- Associate Editor in Chief of IEEE Computer
- Associate Editor of JSS
- Associate Editor of JOT

Benoit Combemale:

- Deputy Editor-in-Chief of JOT
- Member of the Editorial Board of the Springer Journal on Software and Systems Modeling (SoSyM)
- Member of the Editorial Board of the Elsevier Journal of Computer Languages (COLA)
- Member of the Editorial Board of the Springer Journal of Software Quality
- Member of the Advisory Board of the Elsevier Journal on Science of Computer Programming (SCP, Software Section)

9.1.3.2. Reviewer - Reviewing Activities

Olivier Barais:

- Journal of Software and System Modeling (SoSyM)

Djamel E. Khelladi:

- Journal of Software and System Modeling (SoSyM)

Arnaud Blouin:

- Journal of Software and System Modeling (SoSyM)
- Journal of Visual Languages and Computing (JVLC)
- Proceedings of the ACM for EICS 2019 and 2020 (PACM-EICS)

Mathieu Acher:

- Transactions on Software Engineering (TSE)
- Journal of Systems and Software (JSS)
- Editor with Myra B. Cohen of the Special issue on systems and software product line engineering. Journal of Systems and Software (JSS) 154: 110-111 (2019).

Benoit Combemale:

- Journal of Software and System Modeling (SoSyM)
- Journal of Empirical Software Engineering (ESE)

9.1.4. Invited Talks

Jean-Marc Jézéquel:

- *Keynote speech Models@Runtime workshop associated to MODELS2019*

Djamel E. Khelladi:

- Talk at the *IPA Fall Days* in Wageningen, Netherlands.

Johann Bourcier:

- Talk at the UBS university in Vannes, France.

Benoit Combemale:

- *Smart Modeling: On the Convergence of Scientific and Engineering Models*, Invited talk at Lancaster university, UK (14/11/19).
- *Bringing Intelligence to Sociotechnical IoT Systems: Modeling Opportunities and Challenges*, Keynote at MDDE4IoT'19, DE (15/09/19).
- *Breathe Life Into Your IDE*, Talk at LangDev'19, NL (22/03/19).

9.1.5. Leadership within the Scientific Community

Jean-Marc Jézéquel is an elected member of the Board of *InformaticsEurope*.

Benoit Combemale:

- Chair of the Steering committee of the ACM SIGPLAN conference SLE
- Founding member and member of the advisory board of the GEMOC initiative.
- Chair of the Eclipse Research Consortium GEMOC and the Eclipse Project GEMOC Studio.

Mathieu Acher:

- Member of the Steering committee of SPLC conference

Arnaud Blouin: founding member and co-organiser of the French GDR-GPL research action on Software Engineering and Human-Computer Interaction (GL-IHM).

9.1.6. Scientific Expertise

Olivier Barais is an external expert for the H2020 ENACT project. Olivier Barais provides scientific expertises for DGRI international program (20 proposals per year).

9.1.7. Research Administration

Jean-Marc Jézéquel is Director of IRISA (UMR 6074). He is Coordinator of the academic club of the French Cyber-defense Excellence Cluster, and Director of the Rennes Node of EIT Digital.

9.2. Teaching - Supervision - Juries

9.2.1. *Teaching*

The DIVERSE team bears the bulk of the teaching on Software Engineering at the University of Rennes 1 and at INSA Rennes, for the first year of the Master of Computer Science (Project Management, Object-Oriented Analysis and Design with UML, Design Patterns, Component Architectures and Frameworks, Validation & Verification, Human-Computer Interaction) and for the second year of the MSc in software engineering (Model driven Engineering, Aspect-Oriented Software Development, Software Product Lines, Component Based Software Development, Validation & Verification, *etc.*).

Each of Jean-Marc Jézéquel, Noël Plouzeau, Olivier Barais, Johann Bourcier, Arnaud Blouin, and Mathieu Acher teaches about 200h in these domains, and Benoit Combemale teaching about 100h, for a grand total of about 1300 hours, including several courses at ENSTB, Supelec, ENS Rennes and ENSAI Rennes engineering school.

Olivier Barais is deputy director of the electronics and computer science teaching department of the University of Rennes 1. Olivier Barais is the head of the final year of the Master in Computer Science at the University of Rennes 1. Johann Bourcier is the head of the Information Technology department and member of the management board at the ESIR engineering school in Rennes. Arnaud Blouin is in charge of industrial relationships for the computer science department at INSA Rennes and elected member of this CS department council.

The DIVERSE team also hosts several MSc and summer trainees every year.

Mathieu Acher gave courses to EJCP (Ecole Jeune Chercheur en Programmation), a well-known, national training school for PhD students http://ejcp2019.icube.unistra.fr/

9.2.2. *Supervision*

- PhD in progress: Alejandro Gomez Boix, *Distributed counter-measure against browser fingerprinting*, 2016, B. Baudry, D. Bromberg.
- PhD in progress: Jean-Émile Dartois, *Efficient resources management for hybrid cloud computing*, 2016, O. Barais, Jalil Boukhobza.
- PhD in progress: Alexandre Rio, *Demand Side Management A model driven approach to promote energy self-consumption* , 2016, O. Barais, Y. Morel
- PhD in progress: Dorian Leroy, *A generic and generative white-box testing framework for model transformations*, 2017, B. Combemale.
- PhD in progress: Fabien Coulon, *Web engineering for domain-specific modeling languages*, 2017, B. Combemale, S. Begaudeau.
- PhD in progress: June Benvegnu-Sallou, Decision support for the assessment of risks associated with the operation of underground environments, 2018, J-R. De dreuzy, B. Combemale, J. Bourcier.
- PhD in progress: Pierre JeanJean, *Refining simulators by analyzing execution traces of complex systems*, 2018, O. Barais, B. Combemale.
- PhD in progress: Alif Akbar-pranata, *Chaos Engineering for IoT and Network Services*, 2018, O. Barais, J. Bourcier.
- PhD in progress: Antoine Cheron, *Abstractions for linked data and the programmable web*, 2018, O. Barais, J. Bourcier.
- PhD in progress: Gauthier Lyan, *Urban mobility: machine learning for building simulators using large amounts of data*, 2018, J-M. Jééquel, D. Gross Amblard.
- PhD in progress: Hugo Martin, *Learning variability*, 2018, M. Acher.
- PhD in progress: Luc Lesoil, *Deep variability in large-scaled systems*, 2019, M. Acher. A. Blouin, JM Jézéquel.

- PhD in progress: Emmanuel Chebbi , *Domain-Specific Language Reuse*, 2019, B. Combemale, Olivier Barais, G. Leguernic
- PhD in progress: Mohamed Handaoui, *Scheduling Big Data applications in the cloud: the case of machine learning algorithms*, 2019, Jalil Boukhobza. Olivier Barais.
- PhD in progress: Romain Lebouc, *Testing front-ends in a DevOps context*, 2019, Arnaud Blouin, Noël Plouzeau, Alain Ribault.
- PhD : Manuel Leduc, *Formal and Executable Specification of domain-specific language families*, dec 2019, O. Barais, B. Combemale, G. Leguernic
- PhD : Youssou NDiaye, *Modelling and evaluating security of authentication paths*, dec 2019, N. Aillery, O. Barais, A. Blouin, A. Bouabdallah
- PhD: Ludovic Mouline, *Omniscient fault localization in IOT systems using model-driver data analytics*, nov 2019, O. Barais, Y. Le-Traon, J. Bourcier [23]
- PhD: Oscar Luis, *Automatic test amplification*, dec 2019, B. Baudry
- PhD: Manuel Leduc, *On modularity and performances of external domain-specific language implementations*, dec 2019, B. Combemale, O. Barais
- HdR : Arnaud Blouin, Contribution to the Engineering of User Interfaces, Univ Rennes, 30/08/2019 [22]

9.2.3. Juries

9.2.3.1. Jean-Marc Jézéquel

was in the examination committee of the following PhD and HDR thesis:

- Yoann Blein, April 2019, Univ Grenobles Alpes (Examiner)
- Jorge Roda, December 2019, Univ Sevilla (Examiner)
- Emilien Lavigne, December 2019, Univ Bretagne Occidentale (President)

9.2.3.2. Olivier Barais

was in the examination committee of the following PhD and HDR thesis:

- Benjamen Benni, December 2019, Univ Nice (Reviewer)
- Ludovic Mouline, November 2019, Univ Luxembourg (Supervisor)
- Leduc Manuel, December 2019, Univ Rennes (Supervisor)
- Ndiaye Youssou, December 2019, Univ Rennes (Supervisor)
- Davide Frey, December 2019, Univ Rennes (President)
- Hanyang CAO, February 2019, Univ Bordeaux (Reviewer)

9.2.3.3. Arnaud Blouin

was in the examination committee of the following PhD thesis:

- Youssou Ndiaye, December 2019, Univ Rennes (Supervisor)

9.2.3.4. Mathieu Acher

was in the examination committee of the following PhD thesis:

- Frederic Verdier, December 2019, Univ Montpellier (Examiner)

9.2.3.5. Johann Bourcier

was in the examination committee of the following PhD thesis:

- Ludovic Mouline, November 2019, Univ Luxembourg (Supervisor)

9.2.3.6. Benoit Combemale

was in the examination committee of the following PhD thesis:

- Théo Zimmermann, Univ Paris (December 2019), (Reviewer)
- Manuel Leduc, Univ Rennes 1 (December 2019), (Supervisor)

9.3. Popularization

9.3.1. Interventions

- STAMP - Orange Test and Dev Day, Grenoble, France - Nov 2019
- STAMP - Eastern Paris Dev Meetup, Lunatech, Chessy, France - Jul 2019
- STAMP Breakout Session & Talks - OW2con'19, Orange Gardens, Paris Châtillon - Jun 2019
- STAMP Workshop for EC-DGIT (European Commission DGIT) - Brussels - May 2019
- STAMP - Devoxx Paris - Apr 2019
- STAMP & CI testing automation - BreizhCamp 2019 - Mar 2019
- STAMP Talk and Workshop - Station-F, Paris - Feb 2019
- Tech talk at Alten - Rennes - Dec 2019
- Tech talk at Harmonic - Cesson-Sévigné - Oct 2019
- Tech talk at Veonum - Rennes - Sep 2019
- Tech talk at Nokia - Rennes - Jun 2019
- Tech talk at OrangeLabs : Hands-on Workshop - Cesson-Sévigné - May 2019
- Tech talk at Solocal and Kereval - Rennes - Mar 2019
- Tech talk at FaberNovel - Test amplification - Mar 2019
- Sciences de l'Ingénieur au féminin - Lycée Sévigné, Cesson-Sévigné - Nov 2019
- *J'peux pas j'ai informatique* - Inria, Rennes - Apr 2019
- *Petit-déjeuenr des métiers* - Lycée Sévigné, Cesson-Sévigné - Mar 2019 (je ne suis pas sure de la date)
- Devoxx 2019 - Les APIs hypermedia expliquées simplement (17-19 avril 2019) ("While web pages are full of hyperlinks and hypermedia, web APIs are not. However, augmenting web APIs with links is at the core of the REST architectural style, but only 5% of APIs actually do it. That's right, only 5%, despite most people saying that they provide RESTful APIs. In this talk, we discuss what an hypermedia-powered API looks like, what problems of distributed systems integration and composition it can solve and what it would change in frontend code to have such APIs.
- Embedded Linux conference Europe [54] – Given a configuration, can humans know in advance the size, the compilation time, or the boot time of a Linux kernel? Owing to the huge complexity of Linux (there are more than 15000 options with hard constraints and subtle interactions), machines should rather assist contributors and integrators in mastering the configuration space of the kernel. In this talk, we introduce TuxML an OSS tool based on Docker/Python to massively gather data about thousands of kernel configurations. Mathieu will describe how 200K+ configurations have been automatically built and how machine learning can exploit this information to predict properties of unseen Linux configurations, with different use cases (identification of influential/buggy options, finding of small kernels, etc.) The vision is that a continuous understanding of the configuration space is undoubtedly beneficial for the Linux community, yet several technical challenges remain in terms of infrastructure and automation.
- API Days - Backend is the new frontend (9-11 décembre 2019)

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DYLISS Project-Team

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10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Member of the Conference Program Committees

- 12th international conference Semantic Web and Tools for Healthcare and Life Sciences (SWAT4HCLS) [O. Dameron]
- 19th NETTAB-BBCC joint international conference [E. Becker, O. Dameron]
- CSBio2019: The 10th International Conference on Computational Systems-Biology and Bioinformatics [A. Siegel]
- WBC@ICML 2019, ICML 2019 Workshop on Computational Biology [A. Siegel]
- CP'2019 25th International Conference on Principles and Practice of Constraint Programming [A. Siegel]
- Journée IA et santé, organisée par l'AFIA (Assoc. Fr. pour l'Intelligence Artificielle) et l'AIM (Assoc. Fr. d'Informatique Médicale) [O. Dameron]
- JOBIM 2019 [A. Siegel]

10.1.1.2. Reviewer

- Semantic Web and Tools for Healthcare and Life Sciences: O. Dameron
- Journée IA et santé: O. Dameron

10.1.1.3. Jury member

- Jury of interpretability prize of Sigmorphon shared task 2019: F. Coste

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- Journal of Biomedical Semantics [O. Dameron]
- Editor of special issue in grammatical inference of Machine Learning: [F. Coste]

10.1.2.2. Reviewer - Reviewing Activities

- Bioinformatics [A. Siegel, E. Becker]
- Biosystems [A. Siegel]
- Briefings in Bioinformatics [O. Dameron]
- IEEE/ACM TCBB [A. Siegel]
- Neuroinformatics [O. Dameron]
- Machine Learning [F. Coste]
- PLoS Computational biology [A. Siegel]

10.1.2.3. Peer Community in Genomics

In addition to the traditional publishing activities, Dyliss has also been active in the alternative approach "Peer Community in" (PCI). It is is a non-profit community of researchers who review and recommend for free (we also do it for free with traditional journals and conferences anyway), unpublished preprints in their field (i.e. unpublished articles deposited on open online archives like arXiv.org and bioRxiv.org). To a lesser extent, they may also recommend articles already published in journals.

Denis Tagu has been one of the creators of Peer Community in Genomics (PCI Genomics [More details]), which has been launched in October 2019. The scope of this PCI encompasses all aspects of genomics (structural genomics, functional genomics, epigenomics, evolutionary genomics, population genomics, proteomics, bioinformatics) dealing with every type of organisms (viruses, bacteria, fungi, plants, animals,...) as well as metagenomes.

- Denis Tagu is a manager
- Olivier Dameron is a recommender

10.1.3. Invited Talks

- Dusseldorf, Quantitative Theoretical Biology group, Heinrich Heine Universitat, february 2019 [C. Frioux]
- Colloquium J. Morgenstern (Nice), february 2019 [A. Siegel]
- IGNITE International Training Network Spring school [O. Dameron]
- Colloque d'ouverture 50 ans du Laboratoire Jacques-Louis Lions, Roscoff, march 2019 [A. Siegel]
- CNRS GdR MaDics, june 2019 [O. Dameron]
- Boolean Weekend, Burlington, US, april 2019 [A. Siegel]
- Department of Plant Science, University of Oxford, may 2019 [C. Frioux]
- Quadram Institute, may 2019 [C. Frioux]
- Network analysis to elucidate natural system dynamics, diversity and performance, CECAM Conference, Lyon, may 2019 [A. Siegel]
- Séminaire IMBAS Inra Toulouse, june 2019 [A. Siegel]
- CNRS GdR BIM, november 2019 [O. Dameron]
- The 10th International Conference on Computational Systems-Biology and Bioinformatics (CSBio 2019) [N. Théret] Nice (France) December 4 to 7, 2019

10.1.4. Leadership within the Scientific Community

- Member of the steering committee of the International Conference on Grammatical Inference [F. Coste]

10.1.5. Scientific Expertise

10.1.5.1. International expertise

- Luxembourg, FNR. Core program [A. Siegel]

10.1.5.2. Prospective working groups

- "Big & Open Data en recherche à l'horizon 2040" foresight working group of PROSPER network [F. Coste]

10.1.5.3. National responsibilities

- **Institutional boards for the recruitment and evaluation of researchers**.
  – National Council of Universities, section 65 [O. Dameron, nominated member].
- **Recruitment committees**.
  – Inria Senior Researchers [national committee, A. Siegel]
  – Assistant professor in Mathematics for Biology, section 26, Univ Rennes 1 [E. Becker]

10.1.5.4. National scientific boards

- Animation of the Systems Biology working group of national infrastructure GDR IM and GDR BIM [A. Siegel].
- Board of directors of the French Society for biology of the extracellular matrix [N. Théret].

10.1.5.5. Local responsibilities

- Scientific Advisory Board of Biogenouest [N. Théret]
- Delegate to research integrity at the University of Rennes 1 [N. Théret]
- Head of the "Data and Knowledge Managment" Department (6 teams) of the IRISA lab [A. Siegel, since june 2019]
- IRISA laboratory (computer science department of Univ. Rennes 1) council [A. Siegel, until june 2019]
- Member of the Inria Rennes center council [J. Got]
- Responsability of the IRISA laboratory "Health-biology" cross-cutting axis [O. Dameron, until June 2019] [More details]
- Social commitee of Univ. Rennes 1 [C. Belleannée]
- Scientific committee of Univ. Rennes 1 school of medicine [O. Dameron, A. Siegel].
- Emergency aid commission of Univ. Rennes 1 & Rennes2 [C. Belleannée]

10.1.6. Research Administration

10.1.6.1. Inria Instances

- Inria National evaluation board [A. Siegel, nominated member].
- Equality and diversity Committee, Inria - Responsible of the working group focusing on recruitment procedures [A. Siegel].

10.1.6.2. CNRS

- Chargée de mission "bioinformatique" at INS2I-CNRS (Institute for Computer Science of CNRS) [A. Siegel, nominated member].

10.1.6.3. Inria local instances

- Gender equality commission, IRISA & Inria Rennes [A. Siegel, coordinator]
- CUMI (Comission des utilisateurs des moyens informatiques) of Inria Rennes [F. Coste]
- Inria Rennes PhD recruitment (CORDIs) [C. Belleannée]

10.2. Teaching - Supervision - Juries

10.2.1. Teaching track responsibilities

- Coordination of the doctoral school "Biology and Health" of University of Bretagne Loire, Rennes Site 1 [N. Théret]
- Coordination of the master degree "Bioinformatics", Univ. Rennes1 [E. Becker, O. Dameron]

10.2.2. Course responsibilities

- "Method", Master 2 in Computer Sciences, Univ. Rennes 1 [E. Becker]
- "Statistiques appliquées", 3rd year in Fundamental Computer Sciences, ENS Rennes [E. Becker]
- "Introduction to computational ecology", Master 2 in Ecology, Univ. Rennes 1 [E. Becker]
- "Object oriented programming", Master 1 in Bioinformatics, Univ. Rennes 1 [E. Becker]
- "Advanced R for data analysis", Master 1 in Ecology + Master 1 in Bioinformatics, Univ. Rennes 1 [E. Becker]
- "Insertion Professionnelle et tables rondes", Master 1 and Master 2 in Bioinformatics, Univ. Rennes 1 [E. Becker]
- "Atelier de Biostatistiques", 2nd year Biology, Univ Rennes 1 [E. Becker]
- "Internship", Master 1 in Computer Sciences, Univ. Rennes 1 [C. Belleannée]
- "Supervised machine learning", Master 2 in Computer Sciences, Univ Rennes 1 [F. Coste]

- "Atelier bioinformatique", Licence 2 informatique, Univ. Rennes 1 [O. Dameron]

- "Bioinformatique pour la génomique", 2nd year school of medicine, Univ. Rennes 1 [O. Dameron]

- "Bases de mathématiques et probablité", Master1 in public health, Univ. Rennes 1 [O. Dameron]

- "Programmation en Python", Master 1 in Public Health, Univ. Rennes 1 [O. Dameron]

- "Intégration: Remise à niveau en informatique", Master 1 in bioinformatics, Univ. Rennes 1 [O. Dameron]

- "Programmation impérative en Python", Master 1 in bioinformatics, Univ. Rennes 1 [O. Dameron]

- "Semantic Web and bio-ontologies", Master 2 in bioinformatics, Univ. Rennes 1 [O. Dameron]

- "Internship", Master 2 in bioinformatics, Univ. Rennes 1 [O. Dameron]

- Master: A. Siegel, Integrative and Systems biology, Master 2 in bioinformatics, Univ. Rennes 1 [A. Siegel]

- Micro-environnement Cellulaire normal & pathologique, Master 2 in Biologie cellulaire et Moléculaire, Univ. Rennes 1 [N. Théret]

10.2.3. Teaching

Licence : E. Becker, "TPs Python", 12h, 1st year in Biology, Univ. Rennes 1, France

Licence : E. Becker, "Atelier de Biostatistiques", 34h, 2nd year in Biology, Univ. Rennes 1, France

Licence : E. Becker, "Statistiques Appliquées", 20h, 3rd year in Fundamental Computer Sciences, ENS Rennes, France

Master : E. Becker, "Object oriented programming", 43h, Master 1 in Bioinformatics, Univ. Rennes 1, France

Master : E. Becker, "Advanced R for data analysis", 34h, Master 1 in Bioinformatics, Univ. Rennes 1, France

Master : E. Becker, "Introduction to computational ecology", 34h, Master 2 in Ecology, Univ. Rennes 1, France

Master : E. Becker, "Method", 15h, Master 2 in Computer Sciences, Univ. Rennes 1, France

Master : E. Becker, "Insertion Professionnelle et tables rondes", 8h, Master 1 and Master 2 in Bioinformatics, Univ. Rennes 1, France

Master : E. Becker, "Systems Biology : biological netorks", 27h, Master 2 in Bioinformatics, Univ. Rennes 1, France

Licence: C. Belleannée, Langages formels, 20h, L3 informatique, Univ. Rennes1, France.

Licence: C. Belleannée, Projet professionnel et communication, 16h, L1 informatique, Univ. Rennes1, France.

Licence: C. Belleannée, Enseignant référent, 20h, L1 informatique, Univ. Rennes1, France.

Licence: C. Belleannée, Spécialité informatique : Functional and immutable programming , 42h, L1 informatique, Univ. Rennes1, France

Master: C. Belleannée, Algorithmique du texte et bioinformatique, 10h, M1 informatique, Univ. Rennes1, France

Master: S. Blanquart, Juries of Master 1 in bioinformatics, 5h, Univ. Rennes 1, France

Master: L. Bourneuf, Projet, 25h, M1 Santé Publique, France.

Master: F. Coste, Supervised machine learning, 20h, M2 + M1 Science Informatique, Univ. Rennes, France

Licence: O. Dameron, Biostatistiques, 12h, 1st year school of medicine, Univ. Rennes 1, France

Licence: O. Dameron, "Atelier bioinformatique", 12h, Licence 2 informatique, Univ. Rennes 1, France

Master: O. Dameron, "Intégration: Remise à niveau en informatique", 18h Master 1 in bioinformatics, Univ. Rennes 1, France

Master: O. Dameron, "Programmation impérative en Python", 985h Master 1 in bioinformatics, Univ. Rennes 1, France

Master: O. Dameron, "Système informatique GNU/Linux", 10h, Master 1 in bioinformatics, Univ. Rennes 1, France

Master: O. Dameron, 5h, "Internship", Master 1 in bioinformatics, Univ. Rennes 1, France

Master: O. Dameron, "Bases de mathématiques et probablité", 9h, Master1 in public health, Univ. Rennes 1, France

Master: O. Dameron, "Programmation impérative en Python (2)", 3h Master 1 in public health, Univ. Rennes 1, France

Master: O. Dameron, 20h, "Semantic Web and bio-ontologies", Master 2 in bioinformatics, Univ. Rennes 1, France

Master: O. Dameron, 15h, "Internship", Master 2 in bioinformatics, Univ. Rennes 1, France

Licence: N. Guillaudeux, Projet professionnel et communication, 16h, 1st year Computer Science, Univ. Rennes 1, France

Licence: N. Guillaudeux, "TPs Python", 36h, 1st year in Biology, Univ. Rennes 1, France

Licence: M. Louarn, Introduction à la BioInformatique, 6h, L2 Informatique, Univ. Rennes 1, France.

Licence: M. Louarn, Informatique, 10h, L1 Physique Chimie, Univ. Rennes 1, France.

Master: M. Louarn, Informatique Médicale Avancée, 2h, M1 Médecine, Univ. Rennes 1, France.

Master: M. Louarn, Object-oriented programming, 25h, M2 bioinformatique et génomique, Univ. Rennes 1, France.

Master: M. Louarn, Jury de stage, 6h, M1 bioinformatique et génomique, Univ. Rennes 1, France.

10.2.4. Supervision

PhD: Yann Rivault, *Analyse de trajectoires de soins à partir de bases de données médico-administratives : apport d'un enrichissement pas des connaissances biomédicales issues du Web des Données*, defended 28th January 2019, supervised by O. Dameron and N. Lemeur [64].

PhD: Lucas Bourneuf, *A search space of graph motifs for graph compression: From Powergraphs to triplet concepts*, defended 17th december 2019, supervised by J. Nicolas [12].

PhD in progress: Johanne Bakalara, *Temporal models of care sequences for the exploration of medico-administrative data*, started in Oct. 2018, supervised by T. Guyet (Lacodam), E. Oger (Repères) and O. Dameron.

PhD in progress: Arnaud Belcour, *Inferring Model metabolisms for bacterial ecosystems reduction*, started in Oct. 2019, supervised by A. Siegel and S. Blanquart.

PhD in progress: Mael Conan, *Predictive approach to assess the genotoxicity of environmental contaminants during liver fibrosis*, started in Oct. 2017, supervised by S. Langouet and A. Siegel.

PhD in progress: Olivier Dennler, *Modular functional characterization of ADAMTL and ADAMTSL protein families*, started in Oct. 2019, supervised by N. Theret, F. Coste and S. Blanquart.

PhD in progress: Nicolas Guillaudeux, *Compare gene structures to predict isoform transcripts*, started in Oct. 2018, supervised by O. Dameron, S. Blanquart and C. Belleannée.

PhD in progress: Virgilio Kmetzsch *Multi-modal analysis of neuroimaging and transcriptomics data in genetically-induced fronto-temporal dementia*, started in Oct. 2019, supervised by E. Becker and O. Colliot (Inria Aramis, ICM Paris)

PhD in progress: Marine Louarn, *Intégration de données génomiques massives et hétérogènes, application aux mutations non-codantes dans le lymphome folliculaire*, started in Oct. 2017, supervised by A. Siegel, T. Fest (CHU) and O. Dameron.

PhD in progress : Hugo Talibart, Learning grammars with long-distance correlations on proteins, started in Nov. 2017, supervised by F. Coste and J. Nicolas.

PhD in progress : Pierre Vignet, *Identification et conception expérimentale de nouveaux agents thérapeutiques à partir d'un modèle informatique des réseaux d'influence du TGF-β dans les pathologies hépatiques chroniques* , started in Dec. 2018, supervised by N. Théret and A. Siegel.

PhD in progress : Méline Wéry, *Methodology development in disease treatment projects.* , started in Oct. 2017, supervised by E. Becker, C. Bettembourg (Sanofi), O. Dameron, and A. Siegel.

10.2.5. *Juries*

- Referee of PhD thesis: Aarón Ayllón-Benítez, Univ. Bordeaux [O. Dameron] - A. Beica, ENS [A. Siegel, president] - F. Bridoux, Marseille [A. Siegel] - C. Hernandez, ENS [A. Siegel, president]

- Member of PhD thesis juries: Sandeep Manandhar, Univ. Rennes [O. Dameron] - A. Husson, Paris Diderot [A. Siegel] - Arran Hodgkinson, Univ. Montpellier [N. Théret]

- Referee of habilitation thesis: Fleur Mougin, Univ. Bordeaux [O. Dameron] - S. Peres, Orsay [A. Siegel]

- Member of habilitation thesis juries: Adrien Coulet, Univ. Lorraine [O. Dameron] - L. Calzone [A. Siegel, president]

10.2.6. *Interns*

- Internship, from Jan 2019 until Jun 2019. Supervised by O. Dameron and O. Corby (Wimmics team, Sophia-Antipolis) . Student: Antoine Abel (Master 2 bioinformatique, Univ. Rennes 1). Subject: Faster SPARQL federated queries [31]

- Internship, from Jan 2019 until Jun 2019, Supervised by O. Dameron and A. Duchene (Theranexus). Student: Pierre Beaudier (Master 2 bioinformatique, Rennes). Subject: Evaluation of the public databases' relevance as comprehensive tools for pharmalogical mechanisms [32]

- Internship, from Jan 2019 until Jun 2019, Supervised by E. Becker, Fabrice Legeai (IGEPP) and Julien Bobe (LPGP). Student: Fanny Casse (Master 2 bioinformatique, Rennes). Subject: MiRNA regulating genes responsible for fertility and early embryonic development in the Medaka fish [35].

- Internship, from April 2019 until July 2019, Supervised by P. Dabert (IRSTEA), A. Siegel and S. Blanquart. Student: Theo Combe (Master 1 bioinformatique, Rennes). Subject: Reconstructing metabolic pathways of methanogenic communities using metabarcoding data

- Internship, from May 2019 until Jun 2019, Supervised by F. Coste. Student: Arthur Correnson (Licence math-informatique, Université Paul Sabatier, Toulouse). Subject: Implementation of a new partial local multiple alignment algorithm.

- Internship, from Jan 2019 until Jun 2019, Supervised by F. Coste, N. Théret, S. Blanquart, C. Belleannée. Student: Olivier Dennler (Master 2 bioinformatique, Rennes). Subject: Functional module characterization of ADAMTS / ADAMTSL protein family [37]

- Internship, from Jan 2019 until Jun 2019, Supervised by A. Siegel. Student: Clara Emery (Master 2 bioinformatique, Rennes). Subject: Modeling of quorum sensing system by in silico approaches

- Internship, from May 2019 until Oct 2019, Supervised by E. Becker and G. Rabut (IGDR, Rennes). Student: Camille Juigne (ENSSAT, Lannion). Subject: Data integration and formal analysis of the network between ubiquitination enzymes.

- Internship, from Jan 2019 until Jun 2019, Supervised by F. Morrews. Student: Albane Lysiak (Master 2 bioinformatique, Rennes). Subject: Exploiting paralog genes for discovering genetic regulation by transcription factors.

- Internship, from Jul 2019 until Aug 2019, Supervised by C. Belleannée and N. Guillaudeux. Student: Pierre Alexis Odye (Master 1 informatique, Rennes). Subject: Design of a database on known and predicted transcriptomics data in humans, mice and dogs.

- Internship, from Jul 2019 until Aug 2019, Supervised by E. Becker and F. Moreews. Student: Hugo Simon (1st year Telecom Paris Tech). Subject: Large scale analysis of metabolic networks as biological graphs.

- Internship, from Jun 2019 until Jul 2019, Supervised by A. Siegel and R. Andonov. Student: Kerian Thuillier (ENS Rennes). Subject: Linear programming for metabolic network completion [41]

- Internship, from Jan 2019 until Jul 2019, Supervised by C. Frioux. Student: Margot Wagner (Master 2 écologie, Rennes). Subject: Discriminant analysis of transcriptomics and metagenomics of an alga and its microbiota in multiple culture conditions with genome-scale modelling.

10.3. Popularization

10.3.1. Interventions

- "J'peux pas j'ai informatique", Welcoming of high-school students to leverage stereotypes about computer sciences (110 participants), Apr. 2019 [O. Dameron, A. Siegel]

- "Elles codent Elles créent" Our Ph-D students have been involved in creative Python learning sessions for female students in two high-schools. [M. Louarn, M. Wéry, A. Siegel]

- Operation DECLIC (Dialogues Entre Chercheurs et Lycéens pour les Intéresser à la Construction des Savoirs). Lycée Descartes, Rennes. Nov 2019 [More details] [N. Théret, M. Conan, P. Vignet, O. Dennler]

10.3.2. Internal action

- Organization of the weekly seminar "Symbiose", involving teams DYLISS, GENSCALE and GENOUEST: [S. Blanquart]

10.3.3. Creation of media or tools for science outreach

Science en Cour[t]s (*http://sciences-en-courts.fr/*) Many of our current and former PhD students (M.Wéry, L. Bourneuf, A. Antoine-Lorquin, C. Bettembourg, J. Coquet, V. Delannée, G. Garet, S. Prigent) have been heavily involved in organization of a local Popularization Festival where PhD. students explain their thesis via short movies. The movies are presented to a professional jury composed of artists and scientists, and of high-school students. Previous years films can be viewed on the festival web-site [More details]

EASE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

The E4SE team has been involved from the beginning with the City of Rennes in the design of the inOut event and its experts comitee. inOut is an innovative initiative at the service of new mobility solutions. After holding a first event in March 2018, inOut returned to Rennes in 2019 from 28 to 31 March and will happen again next years. The two-day [IN]door business event, followed by an [OUT]door event open to the general public for the entire weekend, gathers together mobility businesses and users to debate, test, and explore new mobility solutions. At the crossroads of digital technologies and mobilities, inOut seeks to bring out the best these two worlds have to offer by providing a space of discussion and debate, where topics and concepts are unpicked and decoded, and different ideas converge. In addition to the expert-focused [IN] part of the event which targets mobility professionals from all over the world, there is also an [OUT] section that invites the general public to take a weekend to explore and discover this topic of new mobilities. Field tests and experimentations are also conducted as part of inOut to support start-ups, businesses and manufacturers and to encourage them to explore what the future holds.
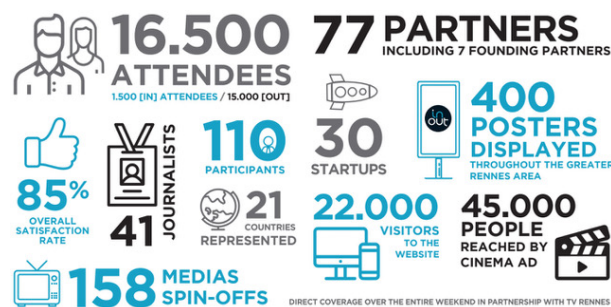

Figure 4. inOut 2019 in figures

inOut is not only an event and we built in with experimentation at the heart of the innovation approach. It has a life beyond the event. It offers an ecosystem of new mobility solutions throughout the year. Experiments, demonstrations, hackathons, and academic challenges get students, researchers, start-ups, and users involved. The call for experiments encourages entrepreneurs and academics to create and test innovations all along the year. An inOut experimentation is conducted in an open-air laboratory: the city of Rennes places its streets and facilities at the disposal of start-ups and companies so that they can test the digital technologies of the city of tomorrow. It aims to provide a response to the need for innovation in communities, to upgrade and develop business sectors, to improve the appeal of the region (companies and universities) for companies and research projects.

9.1.2. Scientific Events: Selection

9.1.2.1. Member of the Conference Program Committees

- PC member of VTC 2019, ICIN 2019, ICON 2019, VEHITS 2020, ICCVE 2019, 3ICT 2019, JM. Bonnin
- PC member of eHPWAS 2019, AdHoc Now 2020, F. Weis

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

- IEEE Communication Magazine, JM. Bonnin and C. Couturier
- IEEE Access, Wireless Communication and Mobile Computing, The Computer Journal, Transactions on Mobile Computing, Vehicular communications, Journal of sensors, JM. Bonnin
- IEEE Computer, F. Weis

9.1.4. Invited Talks

- Presentation at Security Days @ IRISA, JM Bonnin
- Round table at InOut 2019, JM Bonnin
- Presentation of the EASE activity around Mobile Data collection in Smart City at South West Aboriginal Medical Service, JM Bonnin

9.1.5. Scientific Expertise

- Head of the scientific committee of InOut 2019, JM. Bonnin
- Member of the scientific council of the GIS ITS, JM. Bonnin
- Member of the scientific council the Id4Car cluster, JM. Bonnin
- Scientific advisor of the YoGoKo startup, JM. Bonnin
- Scientific advisor for an INRA team (Unité Expérimentale Ecologie et Ecotoxicologie Aquatiques) on fish tracking issues using LF RFID, P. Couderc
- Co-head of "the pole Digital Society of the MSHB" (Maison des Sciences de l'Homme de Bretagne), JM. Bonnin
- Project evaluation for ANR, Belgium, Id4Car, Région Pays de la Loire, Région Grand Est, JM. Bonnin
- Expert for CSV board of "Pôle Images et Réseaux", projects reviewing and selection, strategic roadmap definition, P. Couderc

9.1.6. Research Administration

- Head of the Networks, Telecommunication and service department at IRISA, JM. Bonnin until Nov 2019
- Member for the IRISA Laboratory Council, JM. Bonnin
- Member of the scientific council of ECAM (Engineering school), JM. Bonnin

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- L2/L3: network computing (lectures, tutorials, labs), 250 hours, F. Weis, Univ. Rennes 1
- Master 2: Wireless LANs, F. Weis, 30 hours, M2, IMT Atlantique
- Master 2: Pervasive computing and IoT system architectures, 4 hours, P. Couderc, Univ. Rennes 1
- Master 1: Network programming (lectures, tutorial, labs), 78 hours, Y. Maurel, Univ. Rennes 1

- L3/M2: network communications protocol for building automation (lectures, labs), 80 hours, Y. Maurel

- Master 2: Software engineering (lectures, tutorial, labs), 82 hours, Y. Maurel

- Master 2 : Mobility management in the Internet, JM. Bonnin, IMT Atlantique

- Master 2 Smart Mobility : Communications for ITS, JM. Bonnin, IMT Atlantique

- Master 2 IoT: Smart City, JM. Bonnin, ENSI Tunis

- Continuous training: Communications for Autonomous and Cooperative vehicle, Communications for ITS, JM. Bonnin, IMT Atlantique

- Master 1: Network programming (lab and project), 72 hours, C. Couturier, IMT Atlantique

- Master 1: IP networks (lectures, tutorial), 24 hours, C. Couturier, IMT Atlantique

- Master 2: Enterprise Network Design, 12 hours, C. Couturier, IMT Atlantique

- Master 2: Bid to Call for Tender, 12 hours, C. Couturier, IMT Atlantique

- Master 2: Supervision of the Networking and Telecom curriculum of FIP3A, C. Couturier, IMT Atlantique

- Master 2: Tools for cloud computing , 18 hours, C. Couturier, IMT Atlantique

9.2.2. Supervision

PhD in progress: Indra Ngurah, Car-based Data Collection for Low Energy Devices (Car-based DC4LED), May 2016, Jean-Marie Bonnin

PhD in progress: Alexandre Rio, "Modélisation des activités de site consommateur d'énergie", Octobre 2016, Olivier Barais (UR1) and Yoann Maurel

PhD in progress: Rodrigo Silva, "Mécanisme de décision multi-critères pour le placement de flux en environnement hétérogène et changeant", Nov. 2015, Jean-Marie Bonnin

PhD in progress: Nejm Frigui, "Maintenance autonomique du réseau programmable d'accès optiques de très haut débit", Jan. 2016, Jean-Marie Bonnin

9.2.3. Juries

PhD: Mohammad Irfan Khan, "Multi-Service Resource Orchestration for Vehicular Safety Communication", Jean-Marie Bonnin, referee Dec 2019

EMPENN Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Camille Maumet was chair of the Open Science Special Interst Group of the Organisation of Human Brain Mapping. https://www.humanbrainmapping.org/m/pages.cfm?pageid=3712
- Giulia Lioi was chair of a Scientific Symposium during the conference of Organisation of Human Brain Mapping, 2019 : "Multimodal Neurofeedback: The next generation of neurofeedback for advanced brain self-regulation"
- Brainhack Global Rennes 2019: https://brainhack.irisa.fr, November 14-15, Rennes, France (Julie Coloigner, Emmanuel Caruyer and Raphael Truffet).
- Christian Barillot is member of the Board of Directors of IPMI conference series (Information Processing in Medical Imaging)
- Camille Maumet is a member of the "Comité national pour la Science Ouverte (CoSO)" Working group of open software led by Roberto Di Cosmo.
- Camille Maumet is a member of Aperture, a new publishing plateform, working group "workflows" led by Peter Bandettini.

10.1.1.2. Member of the Organizing Committees

- Brainhack Global Rennes 2018: https://brainhack.irisa.fr, May 25-26, Rennes, France (Julie Coloigner, Emmanuel Caruyer and Raphael Truffet).
- ARSEP workshop on multiple sclerosis, Feb 2, ICM (Élise Bannier).
- Élise Bannier is founding member of the REMI network for mutual aid in MRI studies (https://remi.network/) to facilitate setup and quality control of multicenter studies and share expertise between centers, with two meetings organized this year in Strasbourg and Paris.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Emmanuel Caruyer has been a program committee member of the MICCAI CDMRI workshop since 2013.
- Camille Maumet is a member of programm committee of INCF Neuroinformatics 2019 https://www.neuroinformatics2019.org/, September 1-2, Warsaw, Poland.
- Camille Maumet is member of Program Commitee: GEANT workshop: https://neuroinfo.fr/#!/workshops/geant2019, May 21, Marseille, France

10.1.2.2. Reviewer

- IEEE International Symposium on Biomedical Imaging (Emmanuel Caruyer, Olivier Commowick, Julie Coloigner)
- MICCAI (Olivier Commowick, Francesca Galassi)
- Workshop on Biomedical Image Registration (Olivier Commowick)
- Annual congress of the Organisation of Human Brain Mapping (Camille Maumet)
- ESMRMB (Élise Bannier)

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Camille Maumet is member of Editorial Boards of Neuroinformatics
- Christian Barillot is Chief editor of Frontier in Computer science.

10.1.3.2. Reviewer - Reviewing Activities

- NeuroImage (Emmanuel Caruyer, Camille Maumet, Pierre Maurel)
- Medical Image Analysis (Emmanuel Caruyer)
- IEEE TMI (Olivier Commowick)
- Neuroinformatics (Julie Coloigner)
- Med Image Anal (Olivier Commowick, Emmanuel Caruyer, Christian Barillot)
- Scientific Data (Camille Maumet)

10.1.4. Invited Talks

- Emmanuel Caruyer,"Nouveaux enjeux pour l'acquisition d'IRM de diffusion pour la microstructure" ; Journée Nouvelles Imageries INS2I ; December 2019; Lyon."
- Corentin Vallée, "Arterial Spin Labeling, Resting-State and Acquisition duration", Brainnetome center, Institute of Automation, Chinese Academy of Science, Beijing; June 11, 2019
- Corentin Vallée, "Arterial Spin Labeling, Resting-State and Acquisition duration", Brainnetome center, Institute of biophysics, Chinese Academy of Science, Beijing; June 25, 2019
- Giulia Lioi, "EEG-fMRI integration for Neurofeedback", Diagnosis and International Adaptive Imaging (IADI) Laboratory, Nancy, France; September 2019.
- Giulia Lioi, "Multimodal Neurofeedback for Stroke Rehabilitation", 4eme Journee Nationale Neurofeedback Evaluation and Training (NEXT),Bordeaux, France, May 2019.
- Giulia Lioi "Integrating EEG and fMRI for Neurofeedback", Conference Gen2Bio, Biogenouest, Angers, France, May 2019.
- Pierre-Yves Jonin, "Statistiques appliquées en psychométrie. Journées scientifiques de rééducation cognitive chez l'enfant", Lyon, June 14, 2019.
- Pierre-Yves Jonin, "Les méthodes psychométriques pour le cas unique:", Journée de formation de l'Association des Neuropsychologues en Drôme & Ardèche; Valence, France, November 22, 2019.
- Pierre Maurel, "Medical Image Processing: MRI and Brain", seminar at the Mechatronics Department of ENS-Rennes.
- Élise Bannier, "Multi-center (mono-vendor) longitudinal conventional and quantitative spinal cord MRI at 3 Tesla", Spinal Cord Workshop, UCL, London, January 21, 2019.

10.1.5. Leadership within the Scientific Community

- Emmanuel Caruyer: Member (by selection) of the "Bio Imaging and Signal Processing" (BISP) Technical Committee of the IEEE Signal Processing Society (Emmanuel Caruyer).
- Élise Bannier: Elected Member of the French Society for MRI (SFRMBM), starting in Jan 2020 for 6 years.

10.1.6. Scientific Expertise

- Expertise as a reviewer for "Agence Nationale de la Recherche" (ANR) (Emmanuel Caruyer)
- Élise Bannier: HCERES Evaluation Committees of the CERCO and TONIC units in Toulouse as expert, representing the research support staff.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

L2 informatique: Raphaël Truffet, Génie Logiciel, 24h and Complexity, 18h, L2, ISTIC, France,

L2 informatique: Raphaël Truffet, Génie Logiciel, 40h, L2, ISTIC, France

ENS Rennes: Raphaël Truffet, Algorithmic (20h)

L2 biologie: Antoine Legouhy, Bio-statistques 34h, L2, Univ. Rennes 1, France.

M1 mathématiques: Antoine Legouhy, Optimisation 12h, M1, Univ. Rennes 1, France.

M1 biologie: Antoine Legouhy, statistiscs 12h, M1, Univ. Rennes 1, France.

Master SIBM, M2, University of Angers-Brest-Rennes, France.

L1 INF1: Francesca Galassi, Functional and Immutable Programming (Scala) (TP : 40h), L1, ISTIC University of Rennes 1, France.

L3 bioinformatique: Corentin Vallée, Statistics, 32h, University of Rennes 1, France.

Master SIBM: Benoit Combès, Statistics (TD, TP: 12h), University of Angers-Brest-Rennes:

- Emmanuel Caruyer, "Introduction to diffusion MRI" (Plenary: 3h).
- Benoit Combès, "Méthodes de recalage linéaire et non-linéaires" (Plenary: 6h)
- Quentin Duché, "Traitements des données d'IRM fonctionnelle" (Plenary: 1h).
- Isabelle Corouge, "Bio-marqueurs d'imagerie et IRM metabolique et fonctionnelle" (Plenary: 3h).
- Camille Maumet, "Imaging processing pipelines" (Plenary: 3h).
- Élise Bannier, "IRM fonctionnelle BOLD" (Plenary: 1h).
- Benoit Combès, "Méthodes statistiques pour le traitement d'image" (Plenary: 3h).
- Claire Cury, "Evaluation des performances en imagerie me´dicale" (Plenary: 3h). item Julie Coloigner, "Méthodes d'analyse de la connectivité cérébrale" (Plenary: 3h).

Master 2 "Langage Cognition et Apprentissage: Pierre-Yves Jonin,"Méthodologie clinique & psychométrique de l'étude de cas" (4h); Université de Poitiers, February 2019

DIU Sémiologie des démences: Pierre-Yves Jonin, "Diagnostic précoce de la maladie d'Alzheimer: contribution neuropsychologique" (4h); Université de Caen Basse Normandie, March 2019

Master 2 Neuropsychologie: Pierre-Yves Jonin, "Apports et limites du bilan neuropsychologique à visée diagnostic dans les syndromes démentiels" (3,5h); Université de Savoie à Chambéry, March 2019

Licence 3 Psychologie, UES Handicap: Pierre-Yves Jonin "Déficit mnésique et handicap invisible. Détection en neuropsychologie" (8 h); Université de Rennes 2, February 2019

Master 2 Psychologie spécialité handicap: Pierre-Yves Jonin "Neuropsychologie clinique du sujet âgé" (10 h); Université de Rennes 2, January-April 2019

Medicine (4th & 5th year) UE Psychologie et Neurobiologie: Pierre-Yves Jonin,L'exploration neuropsychologique des maladies neurologiques et psychiatriques. 4ème & 5ème année de médecine (4h), Université de Brest, France.

Licence 3 de Psychologie: Pierre-Yves Jonin, Les syndromes neuropsychologiques. L3, (16h); Université de Rennes 2, France

Master 2 "Troubles de la Cognition et du Langage": Pierre-Yves Jonin, Evaluation neuropsychologique à visée diagnostique. Le cas des syndromes démentiels. Master 2 (2 x 6h) Université de Poitiers, France.

Master 2 Neurosciences Cliniques: Pierre-Yves Jonin, "La mémoire humaine" (3h); Université de Rennes 1, novembre 2019

IUT St-Malo: Mathis Fleury, statistics (64); 2019

Licences 2 & 3 Biologie: Xavier Rolland, "Introduction aux Biostatistiques" 1 (TP sur R: 64h), Université de Rennes 1

ESIR: Pierre Maurel, General image processing (60h), Algorithmics and complexity (60h), Medical imaging (60h), École Supérieure d'Ingénieur de Rennes (ESIR).

ENS Rennes: Pierre Maurel, Introduction to image processing (24h)

10.2.2. Supervision

10.2.2.1. PhD & HdR

HDR: Olivier Commowick, "Compartments imaging for the characterization of brain diseases from quantitative MRI", Univ. Rennes 1, defended on June 19, 2019, jury: Isabelle Bloch - Professeur, Telecom Paristech, Sébastien Ourselin - Professeur, King's College London, Jean-Philippe Thiran - Professeur, Ecole Polytechnique Fédérale de Lausanne, Christian Barillot - DR CNRS, Equipe Empenn, Alexander Leemans - Associate Professor, UMC Utrecht and Xavier Pennec - DR Inria, Equipe Epione[1].

PhD: Anne-Claire Binter, "Effects of prenatal exposure to neurotoxicants on the child's brain function evaluated by cerebral imaging", defended on December 4, 2019, Univ. Rennes, Élise Bannier.

PhD: Cédric Meurée, "Arterial spin labelling : quality control and super-resolution", defended on March 25, 2019, Univ. Rennes, Pierre Maurel, Christian Barillot.

PhD: Haykel Snoussi, "Population imaging and diffusion MRI for characterizing multiple sclerosis in the human spinal cord.", defended on May 2, 2019, Univ. Rennes, Christian Barillot and Emmanuel Caruyer[3].

PhD in progress: Antoine Legouhy, "Longitudinal brain altas creation, application to development studies", CNRS, from Nov 2016, Defence planned for February 2020, Christian Barillot, François Rousseau, Olivier Commowick.

PhD in progress: Corentin Vallée, "Joint estimation of neuronal activation, resting-state and basal metabolism from Arterial Spin Labeling", Univ. Rennes, from Nov 2016, Christian Barillot, Isabelle Corouge, Pierre Maurel.

PhD in progress: Xavier Rolland, "Modeling analytic variability in brain imaging", CNRS, from Oct 2018, Christian Barillot, Camille Maumet.

PhD in progress: Raphaël Truffet, "Compressed sensing for microstructure-enabled diffusion MRI", Univ. Rennes / ENS Rennes, from Oct 2018, Christian Barillot, Emmanuel Caruyer.

PhD in progress: Giovanna Orrù, "Modeling brain structural and functional connectivity ", Univ. Rennes, from Oct 2019, Julie Coloigner and Christian Barillot.

PhD in progress: Stéphanie Leplaideur, "Equilibre de la rééducation par vibrations cervicales, adaptation prismatique et association aux deux techniques, chez des patients cérébro-lésés droits– Protocole AVC POSTIM " , started in October 2018, Isabelle Bonan, Élise Bannier.

10.2.2.2. Other supervisions

Master student SIF (Master mention Informatique, parcours Science informatique): Antoine Ackaouy, "Deep learning for segmentation of MS lesions from multimodal MRI", Apr-Oct 2018, Francesca Galassi.

3-months visit: Gregory Kiar, PhD student, "Analytical Stability in fMRI" April-June 2019, Camille Maumet in collaboration with Elisa Fromont (LACODAM, Inria Rennes / IRISA).

Co-supervised project : Alexander Bowring, "Exploring the Impact of Analysis Software on Task fMRI Results" 2019, Camille Maumet in collaboration with Thomas Nichols (LACODAM, Inria Rennes / IRISA).

Co-supervised project : Freya Acar, Best practices reporting for fMRI meta-analysis 2019, Camille Maumet in collaboration with Beatrijs Moerkerke (LACODAM, Inria Rennes / IRISA).

M1 Physique Médicale student: Marion Boulanger, "Evaluation of QC procedures at Neurinfo and optimisation".

L3 ESIR Ingénierie Biomédicale student: Chloé Mercier, "Implementation of a Java tool to perform MR Quality Control on a Eurospin test object".

10.2.3. Juries

- Emmanuel Caruyer. PhD committee: Yann Bihan-Poudec, Université Claude Bernard Lyon 1; December 17, 2019.

- Olivier Commowick. PhD committee: Junhao Wen, "Structural and microstructural neuroimaging for diagnosis and tracking of neurodegenerative diseases", Sorbonne Université; July 4, 2019, PhD supervisors: Olivier Colliot et Stanley Durrleman.

- Olivier Commowick. MD thesis committee: Charlotte Laurent "Intérêt pronostique de l'IRM en tenseur de diffusion dans les neuropathies optiques inflammatoires", Université de Rennes 1; Octobre 25, 2019.

- Olivier Commowick. PhD committee: Christian El Hajj "Estimation et classification des temps de relaxation multi-exponentiels en IRM. Application aux tissus ve´ge´taux.", Ecole centrale Nantes; December 16, 2019, PhD supervisors: Guylaine Collewet and Maja Musse.

10.3. Popularization

10.3.1. Brain awareness week: "Semaine du Cerveau"

Empenn team took part in Brain awareness week 2019. Giulia Lioi, Claire Cury and Élise Bannier coordinated this event for Empenn/Neurinfo.

- Camille Maumet and Christian Barillot: Talk "" Le cerveau numérique: explorons-le!"". March 2019, Rennes, France.

- Quiz on brain imaging, March 2019, Rennes, France.

- Lab visits for students (3e and 1ere S) about MRI, functional MRI, EEG and neurofeedback, and image processing.

- Pierre-Yves Jonin: Talk "Entre connaissances et souvenirs : voyage en terre mnésique", March 2019, Rennes, France

10.3.2. Journée Science et Musique (JSM)

This event was initiated in 2010 by IRISA. The idea is to offer a scientific and festive immersion in the research and new technologies of the music of neurosciences and sounds to the general public. Free workshops, conferences, demonstrations and concerts are available to all throughout the day (for more detail see https://jsm.irisa.fr/). Claire Cury organized the event this year with Nancy Bertin, PANAMA team.

10.3.3. Sciences en Cour[t]s

This event is a festival of short movies, which offers doctoral students the opportunity to make short films about their thesis work. Raphael Truffet, Antoine Legouhy and Xavier Rolland won the high school award https://www.youtube.com/watch?v=IKgqv-iCwak.

10.3.4. "J'peux pas j'ai informatique"

"J'peux pas j'ai informatique" is an outreach program to welcome secondary school students for a day at Inria Rennes / IRISA and introduce them to the various facets of computer science. Camille Maumet and Pierre Maurel helped out to run the hands-on tutorials in which students could learn how a computer works without computers.

10.3.5. Other interventions

- Pierre-Yves Jonin: Series of 2 talks on neuropsychology, Universités du Temps Libre de Bretagne, Jan-Dec, Rennes, France.

10.3.6. Education

- L codent L créent - An outreach program to send PhD students to teach Python to middle school students in 8 sessions of 45 minutes. Camille Maumet is a co-organizer of the local version of this program, initiated in Lille. The program is currently supported by: Fondation Blaise Pascal, ED MathSTIC, Inria and Fondation Rennes 1.

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

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

Jocelyne Erhel is member of

- the international advisory committee of the parallel CFD conferences (Antalya, May 2019).
- the program committee of the workshop Visualization in Environmental Sciences 2019 (co-event of EuroVis).
- the scientific Committee of the workshop "Parallel solution methods for systems arising from PDEs" (Marseille, September 2019).
- the scientific Committee of the conference SimRace (IFPEN, Rueil-Malmaison, scheduled in December 2019 and postponed in 2020).

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

Jocelyne Erhel

- member of the editorial board of ETNA.
- member of the editorial board of ESAIM:Proceedings and Surveys.

Etienne Mémin

- Associate editor for the Int. Journal of Computer Vision (IJCV)
- Associate editor for the Image and Vision Computing Journal (IVC)

9.1.2.2. Reviewer - Reviewing Activities

Jocelyne Erhel: Reviewer for the journals Computational Geosciences, SISC, M2AN, JCAM, PARCO
Dominique Heitz: Reviewer for Exp. in Fluids, AMI Région Auvergne Rhone Alpes
Etienne Mémin: Reviewer for Tellus-A, Quat. J. of the Roy. Met. Soc., Journ. of Fluid Mech., Im. Vis. Comp., Exp. in Fluids, Journ. of Comp. Phys.
Gilles Tissot: Reviewer for Journal of Sound and Vibration, Fluid Dynamics Research.

9.1.3. Invited Talks

Werner Bauer

- European Numerical Mathematics and Advanced Applications Conference 2019, Egmond aan Zee, The Netherlands.
- Seminar talk at IRMAR, University of Rennes, France.
- Seminar talk at the Journée Rennes-Nantes d'Analyse 2019, University of Nantes, France.

Jocelyne Erhel

- Workshop on "Reactive transport modeling", IPGP, Paris, June 2019.
- Workshop on "Parallel Solution Methods for Systems Arising from PDEs", Marseille, France, September 2019.
- Workshop on "Advances in the SImulation of reactive flow and TRAnsport in porous Media (SITRAM)",

Etienne Mémin

- Workshop Big data, data assimilation, and uncertainty quantification, IHP, Paris (France), 12-15 November 2019
- Workshop on stochastic parameterizations and their use in data assimilation 1-5 July 2019 Imperial College London
- Equadif 2019, Leiden The Netherland, July 2019
- EGU, Vienna, Austria, April 2019
- Workshop on Conservation Principles, Data & Uncertainty in Atmosphere-Ocean Modelling", Potsdam, Germany April 2019

9.1.4. Leadership within the Scientific Community

- J. Erhel is scientific coordinator of the website Interstices (since June 2012). https://interstices.info.

9.1.5. Scientific Expertise

- J. Erhel is a member of the scientific council of IFPEN, since April 2016.

9.1.6. Research Administration

Jocelyne Erhel

- the Inria administrative commission (CAP) for researchers, 2016-2019.
- the maths thesis committee of IRMAR, 2017-2019.
- the selection committee for PhD grants of OSUR, 2019.

Dominique Heitz

- Responsible of the Irstea ACTA Team
- Member of Irstea OPAALE research unit Executive Committee
- Member of Pôle Cristal scientific council
- D. Heitz is a member of scientific council of CSTB's Jules Verne Wind Tunnel

Roger Lewandowski

- President du Comité de liaison du groupe GAMNI-SMAI
- President of the Blaise Pascal award jury
- President of GAMNI-SMAI PhD thesis award
- Corresponding person of the SMAI in Rennes
- Responsible of the group "Mathematical modeling" of IRMAR
- Member of the scientific council of IRMAR,
- Member of Mathematical teaching council of U. Rennes I
- Member of the scientific council of the Henri Lebesgue Centre

Etienne Mémin

- Member of the scientific council of LEFE-MANU action of CNRS INSU
- Member of the comity GAMNI-SMAI

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: Jocelyne Erhel, Optimisation, 12h, niveau L3, ENSAI Rennes

Licence : Dominique Heitz, Mécanique des fluides, 30h, niveau L2 INSA Rennes

Master: Jocelyne Erhel, arithmétique flottante, 4h, niveau M1, INSA Rennes

Master : Dominique Heitz, Mécanique des fluides, 25h, niveau M1, Dep GMA INSA Rennes

Master: Roger Lewandowski, Euler and the Navier-Stokes equations, M2, master « fondamental mathematics ».

Master : Etienne Mémin, Analyse du mouvement, Master Informatique, 15h, niveau M2, Université de Rennes 1.

Master : Etienne Mémin, Vision par ordinateur , 15h, niveau M2, ESIR Université de Rennes 1.

Master : Etienne Mémin, Motion analysis , 9h, Master 2 SISEA Université de Rennes 1.

Master : Gilles Tissot, mathematics for acoustics, 20h, niveau M1, Université du Mans.

9.2.2. Supervision

PhD in progress: Bastien Hamlat, University of Rennes 1, October 2016, co-advisors Jocelyne Erhel and A. Michel.

PhD in progress : Long Li, Data assimilation and stochastic transport for the upper ocean dynamics, started November 2017, Etienne Mémin.

PhD in progress : Yacine Ben Ali, Variational assimilation of RANS models for wind engineering, started November 2017, Dominique Heitz, Etienne Mémin, Gilles Tissot.

PhD in progress : Dinh Duong Nguyen, Regular and singular solutions of Navier-Stokes equations with eddy viscosity, started September 2017 , Roger Lewandowski.

PhD in progress : Robin Billard, Modelling of non-conventional perforated acoustic liners, Université du Mans, started December 2017, Gilles Tissot.

9.2.3. Juries

Jocelyne Erhel

- Etienne Ahusborde, HdR, Univ. Strasbourg (rapporteur)
- Benoit Pinier, PhD, Univ. Rennes (examinatrice)
- Quentin Tournois, PhD, Univ. Rennes (examinatrice)

Etienne Mémin

- Anthony Fillion, Ecoles des Ponts, U. Paris-Est (Rapporteur)
- Alban Farchi, Ecoles des Ponts, U. Paris-Est (Examinateur)
- Arthur Pajot, Sorbonne Université, (Rapporteur)

9.3. Popularization

9.3.1. Education

Jocelyne Erhel

- présidente du jury du rallye de mathématiques du CNED, since 2017.

9.3.2. Interventions

Jocelyne Erhel

- conference about spreading epidemics, "les amphis lycéens 2018-2019", March 2019.
- conference about spreading epidemics, "les amphis lycéens 2019-2020", December 2019. [46].

9.3.3. Creation of media or tools for science outreach

Jocelyne Erhel

- was scientific coordinator of the website Interstices (June 2012 - September 2019). She is now member of the editorial board, from October 2019.

GALLINETTE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events: Selection

8.1.1.1. Chair of Conference Program Committees

- A. Mahboubi has served as co-PC chair of the 8th ACM SIGPLAN International Conference on Certified Programs and Proofs (CPP'19).
- A. Mahboubi has served as co-chair of the CoqPL'20 workshop, satellite of POPL'20.

8.1.1.2. Member of the Conference Program Committees

- P.-M. Pédrot has been a member of the program committee of the Coq Workshop'19 and JFLA'20.
- N. Tabareau has been a member of the program committee of FSCD'19 and POPL'19.
- G. Munch-Maccagnoni has been a member of the external review committee for ICFP'19 conference, and a member of the program committees for the workshops SD'19 (affiliated with FSCD) and LOLA'19 (affilitated with LICS).
- A. Mahboubi has been a member of the program commitee of the ITP'19, Frocos'19 and CPP'20 international conferences, and of the TFP'19 workshop.
- G. Jaber has been a member of the program committee of the Student Research Competition of POPL'20.

8.1.1.3. Reviewer

- P.-M. Pédrot has served as an external reviewer for CPP'19, FoSSaCS'19, ICFP'19 and LICS'19.
- N. Tabareau has served as an external reviewer for LICS'19, CPP'19.
- G. Munch-Maccagnoni has served as an external reviewer for FoSSaCS'20.
- G. Jaber has served as an external reviewer for CONCUR'19, ITP'19, FoSSaCS'19 and POPL'20.

8.1.2. Journal

8.1.2.1. Member of the Editorial Boards

- A. Mahboubi is a member of the editorial board of the Journal of Automated Reasoning.
- A. Mahboubi is co-editing the post-proceedings of the TYPES 2019 conference.

8.1.2.2. Reviewer - Reviewing Activities

- N. Tabareau has been a reviewer for Mathematical Strucutre in Computer Science.

8.1.3. Invited Talks

- P.-M. Pédrot gave a 3 hour long invited class on effectful types theories at the JFLA 2019.
- N. Tabareau has given an invited talk at Coq Workshop 2019 in Portland, Oregon.
- G. Munch-Maccagnoni gave a talk at ITU Copenhaguen in July and a talk at the seminar of philosophy in computer science Codes Sources in Paris in June.
- A. Mahboubi has given an invited talk repectively at the MPC'19, CiE'19, Cade'19 and Types'19 international conferences, at the PxTP'19 international workshop and at the Codes Sources seminar.

8.1.4. Leadership within the Scientific Community

- N. Tabareau is a member of the scientific committee of the GdR of Algebraic Topology.

- A. Mahboubi is a member of the core managment group of the EUTypes project, and leader of the "Tools" working group.
- A. Mahboubi is a member of the steering committee of the ITP conference.
- A. Mahboubi is a member of the scientific committee of the GdR "Informatique Mathématique".

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Licence : Julien Cohen, Discrete Mathematics, 48h, L1 (IUT), IUT Nantes, France

Licence : Julien Cohen, Introduction to proof assistants (Coq), 8h, L2 (PEIP : IUT/Engineering school), Polytech Nantes, France

Licence : Julien Cohen, Functional Programming (Scala), 22h, L2 (IUT), IUT Nantes, France

Master : Julien Cohen, Object oriented programming (Java), 32h, M1 (Engineering school), Polytech Nantes, France

Master : Julien Cohen, Functional programming (OCaml), 18h, M1 (Engineering school), Polytech Nantes, France

Master : Julien Cohen, Tools for softaware engineering (proof with Frama-C, test, code management), 20h, M1 (Engineering school), Polytech Nantes, France

Licence : Rémi Douence, Object Oriented Design and Programming, 45h, L1 (engineers), IMT-Atlantique, Nantes, France

Licence : Rémi Douence, Introduction to scientific research in computer science (Project: an Haskell interpreter in Java) Project, 20h, L1 (engineers), IMT-Atlantique, Nantes, France

Licence : Rémi Douence, Object Oriented Design and Programming Project, 30h, L1 (apprenticeship), IMT-Atlantique, Nantes, France

Master : Rémi Douence, Functional Programming with Haskell, 20h, M1 (apprenticeship), IMT-Atlantique, Nantes, France

Master : Rémi Douence, Introduction to scientific research in computer science (Project: an Haskell interpreter in Java), 45h, M2 (apprenticeship), IMT-Atlantique, Nantes, France

Licence : Hervé Grall, Algorithms and Discrete Mathematics, 25h , L3 (engineers), IMT-Atlantique, Nantes, France

Licence : Hervé Grall, Object Oriented Design and Programming, 25h , L3 (engineers), IMT-Atlantique, Nantes, France

Licence, Master : Hervé Grall, Modularity and Typing, 40h, L3 and M1, IMT-Atlantique, Nantes, France

Master : Hervé Grall, Service-oriented Computing, 40h, M1 and M2, IMT-Atlantique, Nantes, France

Master : Hervé Grall, Research Project - (Linear) Logic Programming in Coq, 90h (1/3 supervised), M1 and M2, IMT-Atlantique, Nantes, France

Licence : Guilhem Jaber, Computer Tools for Science, 36h, L1, Université de Nantes France

Master : Guilhem Jaber, Verification and Formal Proofs, 18h, M1, Université de Nantes, France

Master : Nicolas Tabareau, Homotopy Type Theory, 24h, M2 LMFI, Université Paris Diderot, France

8.2.2. Supervision

PhD : Gaetan Gilbert, A new foundation for the Coq proof assistant based on the insight of Homotopy Type Theory, IMT Atlantique, advisors: Matthieu Sozeau and Nicolas Tabareau

PhD : Ambroise Lafont,Towards an unbiased approach to specify, implement, and prove properties on programming languages, IMT Atlantique, advisors: Tom Hirschowitz and Nicolas Tabareau

PhD in progress: Xavier Montillet, Rewriting theory for effects and dependent types, Univ Nantes, advisors: Guillaume Munch-Maccagnoni and Nicolas Tabareau

PhD in progress: Théo Winterhalter, Extending the flexibility of the universe hierarchy in type theory, Univ Nantes, advisors: Matthieu Sozeau and Nicolas Tabareau

PhD in progress: Joachim Hotonnier, Deep Specification for Domain-Specific Modelling, advisors: Gerson Sunye (Naomod team), Massimo Tisi (Naomod team), Hervé Grall

PhD in progress: Igor Zhirkov, Certified Refactoring of C in the Coq proof assistant, advisors: Rémi Douence and Julien Cohen.

8.2.2.1. Supervision of interns

E. Bauer has visited the team for an L3 research internship from June to July on the subject "Categorical models of differential linear logic", supervised by Marie Kerjean.

A. Ben Mansour has visited the team for an L3 research internship from June to August on the subject "Parametricity for languages with effects", supervised by G. Munch-Maccagnoni.

M. Bertrand has visited the team from February to July for an internship on the subject "Effects in Type Theory", supervised by N. Tabareau.

L. Pujet has visited the team from April to August for an internship on the subject "Interpreting Cubical Type Theory using forcing", supervised by N. Tabareau.

G. Combette is visiting the team from October 2019 to February 2020 for an internship on the subject "Axiomatic denotational semantics for resource management in systems programming", supervised by G. Munch-Maccagnoni.

L. Escot has visited the team from October to December for an internship on the subject "Univalent Parametricity at Scale", supervised by N. Tabareau.

P. Geneau de Lamarlière has visited the team for an L3 research internship from June to July on the subject "Symbolic computations in algebraic number theory", co-supervised by A. Mahboubi and S. Dahmen (VU Amsterdam).

8.2.3. Juries

- N. Tabareau has served as external member on the PhD jury of Kenji Maillard, defended November 25th at Inria Paris - Université Paris Sciences et Lettres.

- A. Mahboubi has served as external member on the PhD jury of Florian Faissole, defended December 13th at Paris Saclay University.

- A. Mahboubi has served as external member on the PhD jury of Gaëtan Gilbert, defended December 20th at IMT Atlantique.

- A. Mahboubi has served on the 2019 jury for recruiting Inria CRCN at Inria Rennes Bretagne Atlantique.

- A. Mahboubi has served on the 2019 jury for recruiting an "Agrégé Préparateur" at ENS Rennes.

8.3. Popularization

8.3.1. Education

- Hervé Grall has contributed to the project Merite, which aims to promote science learning in middle and high schools. He is the main contributor to the theme "Communication between machines". The project is coordinated by IMT-Atlantique in partnership with 7 other french higher education institutions, the rectorates of the Nantes and Rennes academies, and financed by the "Investments in the Future" and the fund FEDER Pays-de-la-Loire.

- A. Mahboubi has worked with composer Alessandro Bossetti and students of the professional high-school Lycée Michelet, on a project "Art and Mathematics", supported by the Athenor theater.

8.3.2. Interventions

- P.-M. Pédrot was invited to give a talk about his scientific activities in Le Pleynet, during the "Semaine Sport-Études" of the first year students in computer science from the ENS Lyon.
- P.-M. Pédrot gave a similar talk about his scientific activities at the LS2N, during the visit of first year students in computer science from the ENS Cachan.

8.3.3. Internal action

- A. Mahboubi participates to the Irisa/Inria mentoring program.

GENSCALE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Chair of Conference Program Committees

- seqBIM 20019 : national meeting of the sequence algorithms GT seqBIM [C. Lemaitre]

10.1.1.2. Member of the Conference Program Committees

- JOBIM 2019: French symposium of Bioinformatics [C. Lemaitre]
- seqBIM 2019 : national meeting of the sequence algorithms GT seqBIM [C. Lemaitre, P. Peterlongo]
- BIBM 2019, IEEE International Conference on Bioinformatics and Biomedicine [D. Lavenier]
- BIOKDD 2019, 10th International Workshop on Biological Knowledge Discovery from Big Data [D. Lavenier]
- IPDPS 2019, 33rd IEEE International Parallel and Distributed Processing Symposium [D. Lavenier]
- 11th International Conference on Bioinformatics and Computational Biology (BICOB-2019) [R. Andonov]
- RCAM 2019 (Recent Computational Advances in Metagenomics) [P. Peterlongo]

10.1.1.3. Reviewer

- ISMB 2019 (Intelligent Systems for Molecular Biology) [W. Delage, C. Lemaitre]

10.1.2. Journal

10.1.2.1. Reviewer - Reviewing Activities

- Bioinformatics [P. Peterlongo, D. Lavenier]
- BMC Bioinformatics [D. Lavenier]
- BMC Genomics [D. Lavenier, F. Legeai]
- Briefing in Bioinformatics [D. Lavenier]
- Nature Scientific Reports [F. Legeai]
- Genome Biology [D. Lavenier]
- Genomics [D. Lavenier]
- Machine Learning [J. Nicolas]

10.1.3. Invited Talks

- (IB)2 Research Day - Bruxelles - Oct 2019- "Metagenomics-Comparisons and variants" [P. Peterlongo]

10.1.4. Leadership within the Scientific Community

- Members of the Scientific Advisory Board of the GDR BIM (National Research Group in Molecular Bioinformatics) [P. Peterlongo, C. Lemaitre]
- Animator of the Sequence Algorithms axis (seqBIM GT) of the BIM and IM GDRs (National Research Groups in Molecular Bioinformatics and Informatics and Mathematics respectively) [C. Lemaitre]
- Animator of the INRA Center for Computerized Information Treatment "BBRIC" [F. Legeai]

10.1.5. Scientific Expertise

- Expert for the MEI (International Expertise Mission), French Research Ministry [D. Lavenier]
- Member of the Scientific Council of BioGenOuest [D. Lavenier]
- Member of the Scientific Council of the Computational Biology Institute of Montpellier [D. Lavenier]
- Member of the Scientific Council of Agrocampus Ouest (Institute for life, food and horticultural sciences and landscaping) [J. Nicolas]
- Expert for the Elixir French Service Delivery Plan [P. Peterlongo]

10.1.6. Research Administration

- Member of the CoNRS, section 06, [D. Lavenier]
- Member of the CoNRS, section 51, [D. Lavenier]
- Corresponding member of COERLE (Inria Operational Committee for the assesment of Legal and Ethical risks). Participation to the ethical group of IFB (French Elixir node, Institut Français de Bioinformatique) [J. Nicolas]
- Member of the steering committee of the INRA BIPAA Platform (BioInformatics Platform for Agro-ecosystems Arthropods) [D. Lavenier]
- Member of the steering committee of The GenOuest Platform (Bioinformatics Resource Center BioGenOuest) [D. Lavenier]
- Scientific Advisor of The GenOuest Platform (Bioinformatics Resource Center BioGenOuest) [J. Nicolas]
- Representative of the environnemental axis of the IRISA UMR [C. Lemaitre]
- In charge of the bachelor's degree in the computer science department of University of Rennes 1 (90 students) [R. Andonov]
- Member of the Council of Administration of ISTIC [R. Andonov]

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : C. Delahaye, G. Siekaniec, Python, 48 h, L1, Univ. Rennes 1, France.

Licence : R. Andonov, Graph Algorithms, 60h, L3, Univ. Rennes 1, France.

Licence : K. Da Silva, Algorithms and Complexity, 36 h, L3, ENSAI, Rennes, France.

Licence : W. Delage, Introduction to Biostatistics, 36 h, L2, Univ. Rennes 1, France.

Master : R. Andonov, S. Francois, Operational research, 82h, M1 Miage, Univ. Rennes 1, France.

Master : G. Siekaniec, Python, 21 h, M1, Univ. Rennes 1, France.

Master : K. Da Silva, Statistical learning, 22h, M1, Univ. Rennes 1, France.

Master : C. Lemaitre, P. Peterlongo, Algorithms on Sequences, 52h, M2, Univ. Rennes 1, France.

Master : C. Lemaitre, T. Lemane, Bioinformatics of Sequences, 40h, M1, Univ. Rennes 1, France.

Master : P. Peterlongo, Experimental Bioinformactics, 24h, M1, ENS Rennes, France.

Master : F. Legeai, RNA-Seq, Metagenomics and Variant discovery, 12h, M2, National Superior School Of Agronomy, Rennes, France.

Master : R. Andonov, Advanced Algorithmics, 25h, Univ. Rennes 1, France.

Master : D. Lavenier, Memory Efficient Algorithms for Big Data, Engineering School, ESIR, Rennes.

Master : W. Delage, Internship jury, 6 h, M1, Univ. Rennes 1, France

10.2.2. Supervision

PhD in progress : S. François, Combinatorial Optimization Approaches for Bioinformatics, 01/10/2016-30/09/2019, R. Andonov.

PhD in progress : L. Lecompte, Structural Variant detection in long-read sequencing data, 01/09/2017, D. Lavenier and C. Lemaitre.

PhD in progress : W. Delage, De novo local assembly approaches for the detection of complex genomic variations in rare diseases, 01/10/2017, J. Thévenon and C. Lemaitre.

PhD in progress: K. da Silva, Metacatalogue : a new framework for intestinal microbiota sequencing data mining, 01/10/2018, M. Berland, N. Pons and P. Peterlongo.

PhD in progress: G. Siekaniec, Differential characterization of strains of bacterial species, 01/10/2018, E. Guédon, E. Roux and J. Nicolas.

PhD in progress: C. Delahaye, Robust interactive reconstruction of polyploid haplotypes, 01/10/2019, J. Nicolas

PhD in progress: T. Lemane, unbiased detection of neurodegenerative structural variants using k-mer matrices, 01/10/2019, P. Peterlongo

10.2.3. Juries

- *Member of Habilitation thesis jury*. S. Caboche, Univ. Lille [P. Peterlongo] R. Eyraud, Univ. Marseille [J. Nicolas, referee]

- *President of PhD thesis jury*. J. Wanza, University of Nice Sophia Antipolis [D. Lavenier], M. Guillemé, Univ. Rennes [J. Nicolas]

- *Referee of Ph-D thesis jury*. Kevin Gravouil, Univ Clermont Auvergne [P. Peterlongo]

- *Member of PhD thesis juries*. Lyam Baudry, University Paris-Sorbonne [C. Lemaitre], Pierre Morisse, Univ. Rouen [P. Peterlongo], Pierre Marijon, Univ Lille [P. Peterlongo], Franklin Delehelle, University of Toulouse [D. Lavenier], Lucas Bourneuf, Univ. Rennes [J. Nicolas].

- *Member of PhD thesis committee*. Chi Nguyen Lam, Univ. Brest [D. Lavenier], Benjamin Churcheward, Univ. Nantes [D. Lavenier], Victor Gaborit, Inserm Nantes [P. Peterlongo], Guillaume Gautreau CEA [P. Peterlongo], Sébastien François, Univ. Rennes [J. Nicolas], Mikaïl Demirdelen, Univ. Rennes [J. Nicolas], Hugo Talibart, Univ. Rennes [J. Nicolas].

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Member of the Interstice editorial board [P. Peterlongo]

10.3.2. Interventions

- In educational institutions : Participation to operation "A la découverte de la recherche" in high schools [P. Peterlongo]

- Short Movie "Moi, mon chien et les autres: à la recherche des transcrits perdus", presented at Sciences en Courts, a local contest of popularization short movies made by PhD students (http://sciences-en-courts.fr/) [G. Siekaniec].

10.3.3. Internal action

- co-organizer of Sciences en cour[t]s event, Nicomaque association (http://sciences-en-courts.fr/) [W. Delage]

10.3.4. Creation of media or tools for science outreach

- Popularization article in Interstices. "Analyser le génome des océans" https://interstices.info/analyser-les-genomes-des-oceans/ [P. Peterlongo]

HYBRID Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

- Valérie Gouranton was Main Organizer of the Seminar "Art/Heritage/Culture" (IRISA, Rennes, February 2019), and Member of Organizing Committee of "Journée Science et Musique" (IRISA, Rennes, October 2019).
- Ronan Gaugne was Member of Organizing Committee of "Journée Science et Musique" (IRISA, Rennes, October 2019)
- Florian Nouviale was Member of Organizing Committee of the "Journée Science et Musique" (IRISA, Rennes, October 2019).

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Anatole Lécuyer was Member of the organization committee of IEEE VR 2019 (Panels).
- Ferran Argelaguet was Program Chair of the IEEE VR 2019 conference track.

10.1.2.2. Member of the Conference Program Committees

- Ferran Argelaguet was Member of the conference program committee of ACM SUI 2019.
- Valerie Gouranton was Member of the conference program committee of EuroVR 2019.
- Guillaume Moreau was Member of IEEE ISMAR 2019 Program committee.
- Jean-Marie Normand was Member of the program committee of IEEE VR 2019 Conference Track and of the IEEE AIVR 2019 (International Conference on Artificial Intelligence and Virtual Reality).

10.1.2.3. Reviewer

- Anatole Lécuyer was Reviewer for IEEE VRST 2019, IEEE VR 2019.
- Ferran Argelaguet was Reviewer for IEEE VR 2019, IEEE VRST 2019, ACM CHI 2019, ACM UIST 2019, IEEE ISMAR 2019.
- Maud Marchal was Reviewer for Eurographics 2019, ACM Siggraph Asia 2019, ACM UIST 2019, Eurohaptics 2019, IEEE Haptic Symposium 2019, IEEE ICRA 2019, IHM 2019.
- Valérie Gouranton was Reviewer for IEEE VR 2019, Euro VR 2019
- Guillaume Moreau was Reviewer for IEEE VR 2019, IEEE ISMAR 2019, ACM Augmented Human 2019 and IAPR Machine Vision Applications.
- Jean-Marie Normand was Reviewer for IEEE AIVR 2019, AH 2019, IEEE ISMAR 2019, IEEE VR 2019 Journal Track, IEEE VR 2019 Conference Track, IEEE CoG 2019 (Conference on Games), ACM SAP 2019.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Anatole Lécuyer is Associate Editor of the IEEE Transactions on Visualization and Computer Graphics, Frontiers in Virtual Environments, and Presence journals.
- Valérie Gouranton is Review Editor of Frontiers in Virtual Environments.
- Ferran Argelaguet is Review Editor of Frontiers in Virtual Environments.
- Maud Marchal is Review Editor of Frontiers in Virtual Environments.

- Guillaume Moreau is Review Editor of Frontiers in Virtual Environments.
- Jean-Marie Normand is Review Editor of Frontiers in Virtual Environments.

10.1.3.2. Reviewer - Reviewing Activities

- Ferran Argelaguet was Reviewer for IEEE Transactions on Visualization and Computer Graphics, IEEE Computer Graphics and Applications, International Journal on Human Computer Studies.
- Maud Marchal was Reviewer for IEEE Transactions on Visualization and Computer Graphics, IEEE Transactions on Haptics, The Visual Computer and Computers and Graphics Journal.
- Guillaume Moreau was reviewer for Computers & Graphics, IEEE Transactions on Visualization and Computer Graphics, Frontiers in Virtual Environments.
- Jean-Marie Normand was Reviewer for IEEE Transactions on Visualization and Computer Graphics, Computer Animation and Virtual Worlds.
- Ronan Gaugne was Reviewer for Thermal Science and Engineering Progress, Elsevier and Archaeological and Anthropological Sciences, Springer

10.1.4. Invited Talks

- Valérie Gouranton was invited to give a talk at Aristote Association, Ecole Polytechnique Paris (June 2019) and at Consortium 3D of TGIR HumaNum, Nantes (Dec. 2019)
- Guillaume Moreau was invited to give invited talks at University of South Australia, at the Research workshop of Ecole Centrale Group and at IRT b<>com.
- Ronan Gaugne was invited to give a talk at the EVA (Electronic information, the Visual Arts and beyond) conference "L'original et la copie", at Musée du Quai Branly, Paris, in October 2019.

10.1.5. Leadership within the Scientific Community

- Anatole Lécuyer is Member of the Scientific Board of INCR ("Institut des Neurosciences Cliniques de Rennes")
- Ronan Gaugne is Member of the Selection and Validation Committee for the French cluster "Pôle Images et Réseaux", and of the Consortium 3D of TGIR HumaNum.
- Valérie Gouranton is Member of the Executive Committee of AFRV (French Association for Virtual Reality), and of the Consortium 3D of TGIR HumaNum.
- Maud Marchal is Member of the Executive Committee of Eurographics French Chapter.
- Guillaume Moreau is Member of the Steering Committee of IEEE ISMAR Conference.

10.1.6. Scientific Expertise

- Ferran Argelaguet was Member of a selection committee for the ANR.
- Guillaume Moreau is Member of ANSES (National Health Agency) Working Group on the "sanitary effects of Virtual, Mixed and Augmented Reality". He is also Member of the HCERES (Higher Education and Research Evaluation Council) Committee of SIGMA Engineering School.

10.1.7. Research Administration

- Bruno Arnaldi is Deputy Director of IRISA, and co-Head of the Scientific Council of University of Rennes (ENS Rennes, ENSC Rennes, IEP Rennes, INSA Rennes, University Rennes 1, and University Rennes 2).
- Maud Marchal is Co-Head of the Master of "Research in Computer Science" (SIF) at University Rennes 1.
- Valérie Gouranton is Head of cross-cutting Axis "Art, Heritage & Culture" at IRISA UMR 6074 and she is a member of the Conseil National des Universités 27th section (computer science).
- Guillaume Moreau is Dean of Studies at ECN.
- Jean-Marie Normand is Head of the "Virtual Reality" major at ECN.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Anatole Lécuyer:

> Master AI: "Haptic Interaction and Brain-Computer Interfaces", 6h, M2, Ecole Polytechnique, FR
>
> Master MNRV: "Haptic Interaction", 9h, M2, ENSAM, Laval, FR
>
> Master SIBM: "Haptic and Brain-Computer Interfaces", 4.5h, M2, University of Rennes 1, FR
>
> Master CN: "Haptic Interaction and Brain-Computer Interfaces", 9h, M1 and M2, University of Rennes 2, FR
>
> Master SIF: "Pseudo-Haptics and Brain-Computer Interfaces", 6h, M2, University of Rennes 1, FR

Bruno Arnaldi:

> Master INSA Rennes: "VRI: Virtual Reality and Multi-Sensory Interaction Course", 4h, M2, INSA Rennes, FR
>
> Master INSA Rennes: "CG: Computer Graphics", 12h, M2, INSA Rennes, FR
>
> Master INSA Rennes: "Virtual Reality", courses 6h, projects 16h, M1 and M2, INSA Rennes, FR
>
> Master INSA Rennes: Projects on "Virtual Reality", 20h, M1, INSA Rennes, FR

Ferran Argelaguet:

> Master STS Informatique: "Techniques d'Interaction Avancées", 26h, M2, ISTIC, University of Rennes 1, FR
>
> Master SIF: "Virtual Reality and Multi-Sensory Interaction", 8h, M2, University of Rennes 1, FR
>
> Master SIF: "Data Mining and Visualization", 2h, M2, University of Rennes 1, FR

Maud Marchal:

> Master of Research in Computer Science: "Haptic rendering and physically-based simulation", 4h, M2, University of Rennes 1, FR
>
> Master INSA Rennes: "Computer Graphics", 26h, M1 and responsible of this lecture, INSA Rennes, FR

Valérie Gouranton:

> Licence: "Introduction to Virtual Reality", 22h, L2 and responsible of this lecture, INSA Rennes, FR
>
> Licence: Project on "Virtual Reality", 16h, L3 and responsible of this lecture, INSA Rennes, FR
>
> Master INSA Rennes: "Virtual Reality", 16h, M2, INSA Rennes, FR
>
> Master INSA Rennes: Projects on "Virtual Reality", 20h, M1, INSA Rennes, FR
>
> Master CN: "Virtual Reality", 3h, M1, University of Rennes 2, FR

Ronan Gaugne:

> INSA Rennes: Projects on "Virtual Reality", 24h, L3, Insa Rennes, FR
>
> Master Digital Creation: "Virtual Reality", 6h, M1, University of Rennes 2, FR

Guillaume Moreau:

> Dean of studies, Ecole Centrale de Nantes, FR
>
> Virtual Reality Major, "C++ Programming for VR", 30h, M1/M2, Ecole Centrale de Nantes, FR
>
> Virtual Reality Major, "Fundamentals of Virtual Reality", 6h, M1/M2, Ecole Centrale de Nantes, FR
>
> Virtual Reality Major, "Computer Graphics", 4h, M1/M2, Ecole Centrale de Nantes, FR
>
> Virtual Reality Major, "Advanced Software Development", 20h, M1/M2, Ecole Centrale de Nantes, FR
>
> Computer Science Major, "Discrete Mathematics", 10h, M1/M2, Ecole Centrale de Nantes, FR

Jean-Marie Normand:

   Virtual Reality Major, "Computer Graphics", 24h, M1/M2, Ecole Centrale de Nantes, FR

   Virtual Reality Major, "Fundamentals of Virtual Reality", 14h, M1/M2, Ecole Centrale de Nantes, FR

   Virtual Reality Major, "Computer Vision and Augmented Reality", 26h, M1/M2, Ecole Centrale de Nantes, FR

   Virtual Reality Major, "Advanced Concepts", 24h, M1/M2, Ecole Centrale de Nantes, FR

   Virtual Reality Major, "Projects on Virtual Reality", 20h, M1/M2, Ecole Centrale de Nantes, FR

10.2.2. Supervision

- PhD: Hakim Si-Mohammed, "Design and Study of Interactive Systems based on Brain Computer Interfaces and Augmented Reality", INSA de Rennes, Defended December 3rd, 2019, Supervised by Anatole Lécuyer, Géry Casiez (Mjolnir, Inria) and Ferran Argelaguet

- PhD in progress: Hadrien Gurnel, "Assistance robotisée d'insertion d'aiguille par comanipulation", Started in October 2016, Supervised by Alexandre Krupa (Rainbow, Inria) and Maud Marchal

- PhD in progress: Antonin Bernardin, "Interactive physically-based simulation of dexterous manipulation for robot understanding", Started in September 2017, Supervised by Maud Marchal and Christian Duriez (Defrost, Inria)

- PhD in progress: Xavier de Tinguy, "Haptic manipulation in virtual environments", Started in September 2017, Supervised by Maud Marchal, Claudio Pacchierotti (Rainbow, Inria) and Anatole Lécuyer

- PhD in progress: Rebecca Fribourg, "Perception and interaction with and via avatars", Started in September 2017, Supervised by Ferran Argelaguet, Ludovic Hoyet (Mimetic, Inria) and Anatole Lécuyer

- PhD in progress: Romain Lagneau, "Data-driven models for dexterous manipulation of robots", Started in Septembre 2017, Supervised by Maud Marchal and Alexandre Krupa (Rainbow, Inria)

- PhD in progress: Flavien Lécuyer, "Interactive digital introspection methods for archeology", Started in September 2017, Supervised by Valérie Gouranton, Grégor Marchand (CNRS UMR CREAAH) and Bruno Arnaldi

- PhD in progress: Guillaume Bataille, "Natural interactions with IoT using VR/AR", Started in October 2017, Supervised by Valérie Gouranton, Danielle Pelé and Jérémy Lacoche (Orange Labs) and Bruno Arnaldi

- PhD in progress: Etienne Peillard, "Improving Perception and Interaction in Augmented Reality", Started in October 2017, Supervised by Guillaume Moreau, Ferran Argelaguet, Anatole Lécuyer and Jean-Marie Normand

- PhD in progress: Romain Terrier, "Presence of self and others in a collaborative virtual environment", Started in October 2017, Supervised by Valérie Gouranton, Nico Pallamin (b<>com), Cédric Bach (HDG) and Bruno Arnaldi

- PhD in progress: Mathis Fleury, "Neurofeedback based on fMRI and EEG", Started in November 2017, Supervised by Anatole Lécuyer and Christian Barillot (Visages, Inria)

- PhD in progress: Tiffany Luong, "Affective VR: acquisition, modelling, and exploitation of affective states in virtual reality", Started in February 2018, Supervised by Anatole Lécuyer, Marc Diverrez (b<>com), Ferran Argelaguet

- PhD in progress: Hugo Brument, "Towards user-adapted interaction techniques based on human locomotion laws for navigating in virtual environments", Started in October 2018, Supervised by Ferran Argelaguet, Maud Marchal and Anne-Hélène Olivier (MimeTIC, Inria)

- PhD in progress: Diane Dewez, "Avatar-Based Interaction in Virtual Reality", Started in October 2018, Supervised by Anatole Lécuyer, Ferran Argelaguet and Ludovic Hoyet (MimeTIC)

- PhD in progress: Victor Rodrigo Mercado Garcia, "Encountered-type haptics", Started in October 2018, Supervised by Maud Marchal and Anatole Lécuyer
- PhD in progress: Guillaume Vailland, "Outdoor wheelchair assisted navigation: reality versus virtuality", Started in November 2018, Supervised by Valérie Gouranton and Marie Babel (Rainbow, Inria)
- PhD in progress: Gwendal Fouché, "Immersive Interaction and Visualization of Temporal 3D Data", Started in October 2019, Supervised by Ferran Argelaguet, Charles Kervrann (Serpico Team) and Emmanuelle Faure (Mosaic Team).
- PhD in progress: Adelaide Genay, "Embodiment in Augmented Reality", Started in October 2019, Supervised by Anatole Lécuyer, Martin Hachet (Potioc, Inria)
- PhD in progress: Martin Guy, "Physiological markers for characterizing virtual embodiment", Started in October 2019, Supervised by Guillaume Moreau, Jean-Marie Normand and Camille Jeunet (CNRS, CLEE)
- PhD in progress: Grégoire Richard, "Touching Avatars: The role of haptic feedback in virtual embodiment", Started in October 2019, Supervised by Géry Casiez (Loki, Inria), Thomas Pietzrak (Loki, Inria), Anatole Lécuyer and Ferran Argelaguet
- PhD in progress: Sebastian Vizcay, "Dexterous Interaction in Virtual Reality using High-Density Electrotactile Feedback", Started in November 2019, Supervised by Ferran Argelaguet, Maud Marchal and Claudio Pacchierotti (Rainbow, Inria)

10.2.3. Juries

- Anatole Lécuyer was Referee for the PhD Theses of Justine Saint-Aubert (ISIR-UPMC), Geoffrey Gorisse (ENSAM), Léa Pillette (Univ. Bordeaux), Examiner for the PhD Thesis of Mélodie Fouillen (Inserm Lyon), Grégoire Cattan (GIPSA-Lab), and Examiner for the HDR Thesis of Sinan Haliyo (ISIR-UPMC).
- Bruno Arnaldi was Referee for the PhD Theses of Rémi Lacaze-Labadie (UTC Compiègne) and Nicolas Muller (IRIT, Toulouse), external reviewer for the PhD defense of Alexandre Kabil (IMT Atlantique - Brest) and member for the PhD Defense of Hakim Si Mohammed (INSA Rennes).
- Guillaume Moreau was external reviewer for the PhD defense of Nicolas Muller (IRIT, Univ. Toulouse), Alice Guerville-Ballé (Univ. Pau), Jason Rambach (Univ. Kaiserslautern, DE), president of the committee for Thibaud Toullier (IFSTTAR, Univ. Rennes), Nam Duong Duong (IRT b<>com, Centrale-Supelec).
- Jean-Marie Normand was examiner for the PhD Thesis of Geoffrey Gorisse (ENSAM).

10.3. Popularization

10.3.1. Articles and contents

- Ouest-France: Interview of Anatole Lécuyer (October 2019)
- France Inter: Interview of Anatole Lécuyer in the broadcast "Du vent dans les synapses" (November 2019)
- France TV: Interview of Guillaume Moreau and Jean-Marie Normand in "Télématin"

10.3.2. Interventions

- "Technoférence Humain Augmenté": Presentation from Rebecca Fribourg (Nantes, January 2019)
- "Made by DV-Group": Event organized by Rennes Metropole about "VR and Cinema", presentations and demos from Ferran Argelaguet (Rennes, February 2019)
- "Laval Virtual 2019": Demos of FIVE/SEVEN software (March 2019)

- "Journées Nationales de l'Archéologie": Demos made by Ronan Gaugne and Valérie Gouranton (Champs Libres, Rennes, June 2019)
- "Journées Européennes du Patrimoine": Conference and Demos made by Ronan Gaugne and Valérie Gouranton (Musée des Beaux Arts, Rennes, September 2019)
- "Festival Demain/Maintenant" : Presentation from Anatole Lécuyer (Rennes, October 2019)
- "Fête de la Science" 2019 : Presentation from Anatole Lécuyer (Saint-Louis, October 2019)
- "Journée Science et Musique" : Demos made by Florian Nouviale, Ronan Gaugne and Valérie Gouranton (Rennes, October 2019). Rebecca Fribourg and Diane Dewez also participated in the organization of the event.
- "Festival du Livre du Var" 2019 : Presentation from Anatole Lécuyer (Toulon, November 2019)
- "Digital Design Days" 2019 : Presentation from Ronan Gaugne (Milano, Italy, November 2019)

10.3.3. Internal action

- Inria/IRISA "VR Hackathon" 2019: Hackathon (20 participants) organized by Hybrid team and open to all members of Inria Rennes center (May 2019).
- "20 years of Immersia": Event organized by Inria Rennes/IRISA center, with presentations from Anatole Lécuyer and Bruno Arnaldi, and demos made by Florian Nouviale and Ronan Gaugne (November 2019).

10.3.4. Creation of media or tools for science outreach

The ANR-FRQSC INTROSPECT project produced a transparent 3D printing of the content of an Egyptian mummy cat from a CT scan. The mummy is part of the collection of the Musée des Beaux-Arts of Rennes. The 3D printing is permanently exhibited in the Museum, next to the real mummy (Figure 21)

The immersive VR application of the LSI project developed during the hosting of the invited professor Franz Fischnaller from Albertina Accademy of Fine Arts around the Last Supper painting of Lenonardo da Vinci was deployed and exhbited in the Deep Space 8K of the Ars Electronica center in Linz, Austria (Figure 22).

Figure 21. The mummy cat and its copy in the Museum des Beaux-Arts in Rennes.

Figure 22. The LSI project in the Ars Electronica center in Linz.

HYCOMES 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

- Albert Benveniste has served on the Program Committee of the Modelica Conference 2019.
- Khalil Ghorbal has served on the Program Committee of the VMCAI 2019 conference.
- Benoît Caillaud has served on the Steering Committee of the ACSD 2019 conference.

9.1.2. Invited Talks

Albert Benveniste has given an invited talk titled "Why considering nonstandard semantics for hybrid systems and how to reconcile it with superdense time semantics" at the Oded Maler Memorial workshop at the HSCC'19 conference in Montreal, Canada.

9.1.3. Leadership within the Scientific Community

Albert Benveniste is member of the French Académie des Technologies.

9.1.4. Scientific Expertise

- In 2019, Benoît Caillaud has reviewed collaborative research project proposals submitted to the French national funding agency ANR. As an Inria Evaluation Committee member, he has served on several Inria hiring and promotion committees.
- Albert Benveniste is president of the Scientific Council of Orange and member of the Scientific Council of Safran.

9.1.5. Research Administration

- Albert Benveniste is member of the Burex (Executive Bureau) of the Cominlabs Labex [0].
- Benoît Caillaud is in charge of the IPL ModeliScale [0] national initiative funded by Inria. He is also head of the Programming Languages & Software Engineering department [0] of IRISA.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master : Khalil Ghorbal, *Analyse et Conception Formelles*, M1, (chargé de TD), 22h EqTD, University Rennes 1 and ENS Rennes, France

Master : Khalil Ghorbal, Solvers Principle and Architectures, M2, (enseignant principal), 30h EqTD, ENS Rennes, France

Master : Khalil Ghorbal, Modeling Physics with Differential-Algebraic Equations, M2, (enseignant principal), 25h EqTD, Ecole Polytechnique, Palaiseau, France

9.2.2. Supervision

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[0]https://cominlabs.u-bretagneloire.fr/governance
[0]https://team.inria.fr/modeliscale/
[0]http://www.irisa.fr/en/departments/d4-language-and-software-engineering

PhD: Christelle Kozaily, Structural analysis of nonsmooth dynamical systems, university of Rennes 1, co-supervised by Vincent Acary (Tripop [0] team at Inria Grenoble), Benoît Caillaud and Kahlil Ghorbal, started October 2018.

PhD: Aurélien Lamercerie, Formal analysis of cyber-physical systems requirements expressed in natural language, university of Rennes 1, co-supervised by par Benoît Caillaud et Annie Forêt (SemLIS [0] team of IRISA), started December 2017.

PhD: Joan Thibault, Structural Analysis Techniques for Binary Decision Diagrams, university of Rennes 1, co-supervised by Benoît Caillaud and Khalil Ghorbal.

9.2.3. *Juries*

Benoît Caillaud has served as president of the jury for Hugo Bazille's PhD defense, at the University of Rennes 1.

9.3. Popularization

9.3.1. *Internal action*

The Hycomes team has hosted short internships for secondary school students. This has been an opportunity to promote women in computing, since three female students visited the team for four days, to discover what scientific research is, and what research in computer science could mean. All team members contributed to the initiative.

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[0]https://team.inria.fr/tripop/
[0]https://www-semlis.irisa.fr

I4S 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

J.Dumoulin is

- member of the scientific committee of the GI Division (Geosciences Instrumentation and Data Systems) of EGU (European Geosciences Union) for infrastructure instrumentation and monitoring since April 2013. (http://www.egu.eu/gi/structure/)
- member of the scientific committee of QIRT (quantitative Infrared Thermography) since February 2014 (http://www.qirt.org/)
- Co-organizer of sub-Program group PG4: Earth Surface Investigation Method at General Assembly of EGU 2019 (http://www.egu2019.eu/).

Q. Zhang is

- member of the international program commitee (technical associate editor) of the 21st IFAC World Congress that will take place in Berlin, Germany, July 12-17, 2020.
- member of IFAC Technical Committee on Modelling, Identification and Signal Processing (TC 1.1).
- member of IFAC Technical Committee on Adaptive and Learning Systems (TC 1.2).
- member of IFAC Technical Committee on Fault Detection, Supervision and Safety of Technical Processes (TC 6.4).

L. Mevel is

- member of the EWSHM scientific committee.

V. Le Cam is

- member of the IWSHM scientific committee.
- head and general secretary of the EWSHM scientific committee.
- member of the Asian Pacific Workshop

M. Doehler is

- member of IFAC Technical Committee on Modelling, Identification, and Signal Processing.
- member of the IOMAC scientific committee.

9.1.1.2. Reviewers

M. Doehler was reviewer for ECC 2020.

J. Dumoulin was reviewer for EGU 2019, QIRT ASIA 2019 and SFT 2019.

Q. Zhang was reviewer for CDC 2019, IFAC Word Congress 2020.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

L. Mevel is member of the editorial board of the journal Mathematical Problems in Engineering, and of the journal Shock and Vibration.

Q. Zhang is member of the editorial board of the journal of Intelligent Industrial Systems.

J. Dumoulin is member of the editorial board of the journal Quantitative Infrared Thermography, and Executive Editor for the journal Geoscientific Instrumentation and Data Systems.

9.1.2.2. Reviewer - Reviewing Activities

L. Mevel was reviewer for Mechanical Systems and Signal Processing, Engineering Structures.Structural Control and Health Monitoring

M. Doehler was reviewer for Mechanical Systems and Signal Processing, Engineering Structures, Philosophical Transactions A Mathematical, Physical and Engineering Sciences, Computers and Structures, Structural Health Monitoring.

J. Dumoulin was reviewer for Quantitative Infrared Thermography Journal, GI Journal (EGU), SFT conference, Engineering Geology, International Journal of Pavement Research and Technology, Remote sensing of environment, Structural Health Monitoring, Composites Structures

9.1.3. Invited Talks

L. Ibos and J. Dumoulin, « Thermographie infrarouge: du laboratoire vers les mesures de terrain », Atelier Métrologie Thermique Avancée, SFT 2019 (Congrès annuel de la Société Française de Thermique), Nantes, France, 3 – 6 juin 2019.

9.1.4. Leadership within the Scientific Community

V. Le Cam organized the 2nd SHM France meeting in Nantes, together with CEA and Precend.

9.1.5. Scientific Expertise

V. Le Cam did an expertise in the context of EFFICACITY IRT. The expertise was about the instrumentation of RATP station and the control of the speed of escalators.

V. Le Cam helped SNCF Reseau to dissiminate at industrial results the monitoring of axle counters developed in 2018.

Arthur Bouché did an expertise for SNCF about electromagnetism and axle counters.

Ivan Guéguen did an expertise for ASCQUER for labelization of Lacroix Millenium lights for construction sites.

9.1.6. Research Administration

V. Le Cam is member of the scientific council of WEN (West Electronic Network) since 2014, which is a cluster of about 200 companies, academics and research laboratories active in electronics.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

J. Dumoulin

- Licence Professionnelle TAM (Techniques Avancées en Maintenance): thermographie infrarouge active, 24h, Université Paris-Est Créteil (UPEC), France
- Master 2 ITII, BTP, module Maintenance et réhabilitation des ouvrages, Transferts thermiques dans les Structures : Des principes physiques à l'application sur site réel, 12 h, Ecole Centrale de Nantes(ECN), France.
- With Nicolas Le Touz lecture on Solar Hybrid Roads at SMARTIE ETN Training week 2019
- Lecture on Long term thermal monitoring of Structures at SMARTIE ETN Training week 2019
- Lecture on IR for inspection and/or thermal monitoring of infrastructures: scope of application, technical solutions and analysis methods, at QIRT ASIA 2019 courses day.
- Lecture on Active Thermography for NDE at APESS 2019 (Asia-Pacific-Euro Summer School on Smart Structures).

V. Le Cam

- Master 2 Civil engineering, Structural Monitoring, 4h, Université de Nantes, France
- Licence 3 Professional SEICOM, 3h of theoretical lessons and 20H of practical lessons on Embedded and Smart Systems, Université de Nantes, France
- ESEO, 16h, practical lessons on embedded and smart systems under Linux, France
- Master 2 Electrical Engineering (GEII), 4h on electronic systems and Structural Monitoring, Université Bretagne Sud, France
- Polytech la Roche sur Yon, 8h embeded wireless algorithms §8h for David Pallier

M. Doehler

- Cycle préparatoire intégré, STPI, mathématiques, 48h TD, INSA Rennes, France

X. Chapeleau

- Licence Pro Mesures physiques, Mesures optiques, 15h, IUT de St Nazaire, Université de Nantes, France

T. Toullier

- Master 1, TP Capteurs (12h), contrôle, commandes, École Centrale de Nantes, France
- Foundation Master, TD Programming and Data Analysis (14h), École Centrale de Nantes, France

F. Gillot

- Master 1, Conception optimale robuste de systèmes mécaniques (10h), École Centrale de Lyon, France
- Master 1, Dynamique des systèmes biologiques humains (4h), École Centrale de Lyon, France
- Formation initiale des ingénieurs de l'École Centrale de Lyon, TP, TD, BE, niveau L3, (50h), France

9.2.2. *Supervision*

PhD : Thibaud Toullier. *Simultaneous characterization of the radiative properties and temperatures of envelopes of structures in natural environment by multispectral infrared thermography* L. Mevel, J. Dumoulin and M. Doehler. Ecole doctorale MathSTIC, Université de Rennes 1,defended on 6th November 2019. [15].

PhD : Antoine Bassil, *Fibre-optic sensor for fatigue monitoring*, D. Leduc, O. Abraham and X. Chapeleau. Ecole doctorale SPIGA, Université de Nantes, defended on 26 November 2019.

PhD : Bian Xong, *Vibration analysis by video image processing for civil engineering structure monitoring*, Q. Zhang, V. Balthazar. Ecole doctorale MathsTIC, Université de Rennes 1, since October 2018.

PhD : Eva Viefhues, *Statistical damage localization for civil structures*, L. Mevel and M. Doehler. Ecole doctorale MathSTIC, Université de Rennes 1, since November 2016.

PhD : David Pallier, *Sensor Enhancement to Augmented Usage and Reliability*, S. Pillement, IETR, V. Le Cam, Ecole doctorale MathSTIC

PhD : Alexander Mendler, *Vibration-based structural health monitoring of road bridges*, C. Ventura and M. Doehler. University of British Columbia, Vancouver, Canada, since September 2018.

Ludovic Gavérina post-doctoral project on in-situ measurement of thermal resistance of building envelopes, J. Dumoulin, march 2017- february 2019.

Nicolas Le Touz post-doctoral project on in-situ measurement of thermal resistance of building envelopes, J. Dumoulin, December 2018- august 2019.

9.2.3. *Juries*

Q. Zhang participated in the following PhD defense committees:

- Missie Aguado Rojas at CentraleSupélec, on June 14, 2019.
- Tzila Ajamian at Centrale Nantes on October 24, 2019.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

L. Mevel is member of CLHSCT committee in Rennes.

L. Mevel is member of Comité de centre committee in Rennes.

L. Mevel is Head of Science in 2nd of Inria Rennes Center.

V. Le Cam is Head of SII LAb at IFSTTAR Nantes.

J. Dumoulin is scientific Head SII LAb at IFSTTAR Nantes.

9.3.2. Articles and contents

9.3.2.1. Encycopedia article on nonlinear system identification

In the second edition of Encyclopedia of Systems and Control, published by Springer in September 2019, the article on nonlinear system identification authored by Q. Zhang has been updated with the latest progresses on this topic.

Nonlinear mathematical models are essential tools in various engineering and scientific domains, where more and more data are recorded by electronic devices. How to build nonlinear mathematical models essentially based on experimental data is the topic of this entry. Due to the large extent of the topic, this entry provides only a rough overview of some well-known results, from gray-box to black-box system identification. DOI: https://doi.org/10.1007/978-1-4471-5102-9_104-2

9.3.3. Interventions

M. Doehler and Q. Zhang participated the outreach activity "J'peux pas, j'ai informatique" for school classes on April 2, 2019.

9.3.4. Creation of media or tools for science outreach

9.3.4.1. Showroom demonstrations

A damage localization mockup has been developed and installed in the showroom of Inria Rennes. It has been the support for a demonstration for the outreach activity "J'peux pas, j'ai informatique" for school classes on April 2, 2019, showing that computer science also can be related to physics and statistics. An ADT Carnot has been funded on that topic and will help the maturation of such project.

KERDATA Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organization

9.1.1.1. General Chair, Scientific Chair

Luc Bougé: Steering Committee Chair of the Euro-Par International Conference on Parallel and Distributed Computing. Euro-Par celebrated its 25th anniversary in Göttingen, Germany, this year.

Gabriel Antoniu: Co-Chair of Conv'2019 - the HPC-AI-Big Data Convergence Days.

9.1.1.2. Member of the Organizing Committees

Gabriel Antoniu: Member of the Organizing Committee of Conv'2019, the HPC-AI-Big Data Convergence Days.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

Gabriel Antoniu: Track Co-Chair for the Clouds and Distributed Systems Track of the ACM/IEEE SC19 conference, Denver, USA.

Alexandru Costan: Program Co-Chair of the ScienceCloud 2019 international workshop held in conjunction with ACM HPDC 2019, Phoenix, AZ, USA.

9.1.2.2. Member of the Conference Program Committees

Alexandru Costan: IEEE/ACM SC'19 (Technical Program: Cloud Track, Posters and ACM Student Research Competition), ACM/IEEE CCGrid 2019, IEEE Cluster 2019, IEEE/ACM UCC 2019, IEEE Big Data 2019, SCRAMBL 2019, CSCS 2019, CEBDA 2019, CCIW 2019, IEEE CSE 2018, IEEE CloudCom 2019.

Gabriel Antoniu: IEEE Cluster 2019, IEEE IPDPS 2019, STREAM-ML 2019.

9.1.2.3. Reviewer

Alexandru Costan: ACM HPDC 2019, IEEE IPDPS 2019.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Gabriel Antoniu: Associate Editor of JPDC, the Elsevier Journal of Parallel and Distributed Computing.

9.1.3.2. Reviewer - Reviewing Activities

Alexandru Costan: IEEE Transactions on Parallel and Distributed Systems, Future Generation Computer Systems, Concurrency and Computation Practice and Experience, IEEE Transactions on Cloud Computing, Journal of Parallel and Distributed Computing.

Gabriel Antoniu: SoftwareX, Philosophical Transactions A.

9.1.4. Invited Talks

Gabriel Antoniu

– Fourth BDEC2 Workshop on Big Data and Extreme Computing, San Diego, in October 2019. *Towards a demonstrator of the Sigma Data Processing Architecture for BDEC 2.* URL: https://www.exascale.org/bdec/agenda/poznan.

– Third BDEC2 Workshop on Big Data and Extreme Computing, Poznan, in May 2019. *ZettaFlow: Towards High-Performance ML-based Analytics across the Digital Continuum.* URL: https://www.exascale.org/bdec/agenda/sandiego.

– Ninth Workshop of the Joint Laboratory for Extreme-Scale Computing (JLESC) in April 2019. *Scalable Data Ingestion for Stream Processing.* URL: https://jlesc.github.io/.

Alexandru Costan

– Inria/ IPN Joint Workshop, Mexico City, November 2019. *From Big Data to Fast Data: Efficient Stream Data Managements.*

9.1.5. Leadership within the Scientific Community

Luc Bougé: Co-Vice-President of the *French Society for Informatics* (*Société informatique de France*, SIF), in charge of the Teaching Department.

Gabriel Antoniu

ETP4HPC   Since 2019, co-leader of the working group on Programming Environments and co-lead of two research clusters, contributing to the next Strategic Research Agenda of ETP4HPC (to appear).

International lab management   *Vice Executive Director of JLESC* for Inria. JLESC is the Joint Inria-Illinois-ANL-BSC-JSC-RIKEN/AICS Laboratory for Extreme-Scale Computing. Within JLESC, he also serves as a *Topic Leader* for Data storage, I/O and in situ processing for Inria.

Team management   *Head of the KerData Project-Team* (Inria-ENS Rennes-INSA Rennes).

International Associate Team management   Leader of the UNIFY Associate Team with Argonne National Lab (2019–2021).

Technology development project management   Coordinator of the Damaris ADT project (2016–2018), to be continued with the Damaris 2 ADT project (2019–2021).

9.1.6. Scientific Expertise

Luc Bougé

HCERES: Chair of the evaluation committee for the CRIStAL joint laboratory, Lille (report)

HCERES: Member of the evaluation committee for the IRCICA research institute, Lille

9.1.7. Research Administration

Luc Bougé

ANR: Member of the management team for the IA for Humanity governmental program launched in March 2018. Bertrand Braunschweig, Inria, is the scientific director of the program.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Gabriel Antoniu

– Master (Engineering Degree, 5th year): Big Data, 24 hours (lectures), M2 level, ENSAI (*École nationale supérieure de la statistique et de l'analyse de l'information*), Bruz, France.

– Master: Scalable Distributed Systems, 10 hours (lectures), M1 level, SDS Module, EIT ICT Labs Master School, France.

– Master: Infrastructures for Big Data, 10 hours (lectures), M2 level, IBD Module, SIF Master Program, University of Rennes, France.

– Master: Cloud Computing and Big Data, 10 hours (lectures), M2 level, Cloud Module, MIAGE Master Program, University of Rennes, France.

Alexandru Costan

– Bachelor: Software Engineering and Java Programming, 28 hours (lab sessions), L3, INSA Rennes.
– Bachelor: Databases, 68 hours (lectures and lab sessions), L2, INSA Rennes, France.
– Bachelor: Practical case studies, 24 hours (project), L3, INSA Rennes.
– Master: Big Data Storage and Processing, 28h hours (lectures, lab sessions), M1, INSA Rennes.
– Master: Algorithms for Big Data, 28 hours (lectures, lab sessions), M2, INSA Rennes.
– Master: Big Data Project, 28 hours (project), M2, INSA Rennes.

Luc Bougé

– Bachelor: Introduction to programming concepts, 36 hours (lectures), L3 level, Informatics program, ENS Rennes, France.
– Bachelor: Introduction to scientific research, 24 hours. Research center visits, individual research project supervised by local researchers, student seminars, summer internships, etc.
– Master Program, Rennes: Invited presentation to the M2 students about *Preparing your applications after your PhD* (October 2019); *Informatics as a scientific activity: Towards a responsible research* (November 2019).

Pedro Silva

– Master: Algorithms for Big Data, 4 hours (lectures), M2, INSA Rennes.
– Master: Algorithms for Big Data, 6 hours (lab sessions), M2, INSA Rennes.

9.2.2. Supervision

9.2.2.1. HdR completed this year

Alexandru Costan: *From Big Data to Fast Data: Efficient Stream Data Management*, ENS Rennes, March 2019 [15].

9.2.2.2. PhD completed this year

Nathanaël Cheriere: *Towards Malleable Distributed Storage Systems? From Models to Practice*, ENS Rennes, thesis defended in November 2019, co-advised by Gabriel Antoniu and Matthieu Dorier [14].

9.2.2.3. PhD in progress

Daniel Rosendo: *Enabling HPC-Big Data Convergence for Intelligent Extreme-Scale Analytics*, INSA Rennes, thesis started in October 2019, co-advised by Gabriel Antoniu, Alexandru Costan and Patrick Valduriez (Inria).

Paul Le Noac'h: *Workflow Data Management as a Service for Multi-Site Applications*, INSA Rennes, thesis started in November 2016, co-advised by Luc Bougé and Alexandru Costan. Thesis stopped in February 2019.

9.2.3. Juries

Luc Bougé: Member of the jury the *CAPES of mathématiques*, *Informatics track*. This national committee selects more than 1000 mathematics teachers per year for French secondary schools and high-schools.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

Alexandru Costan

– In charge of internships at the Computer Science Department of INSA Rennes.
– In charge of the organization of the IRISA D1 Department Seminars.

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

10. Dissemination

10.1. Scientific Events: Organisation

10.1.1. General Chair, Scientific Chair

- Elisa Fromont was one of the general chairs of ECML/PKDD 2019 that took place in Würzburg, Germany (Sept).
- Tassadit Bouadi was co-chair of the ECML/PKDD'2019 PhD Forum
- Tassadit Bouadi and Luis Galárraga are organizers of the two editions of the AIMLAI workshop (Advances in Interpretable Machine Learning and Artificial Intelligence) colocated with the conferences EGC (https://project.inria.fr/aimlai/) and ECML/PKDD (https://kdd.isti.cnr.it/xkdd2019/) 2019 respectively.
- AALTD@ECML (T. Guyet), https://project.inria.fr/aaltd19/
- GAST@EGC (T. Guyet), https://gt-gast.irisa.fr/gast-2019/
- GeoInformation Analytics Technical Track at the ACM/SIGAPP Symposium On Applied Computing (T. Guyet), https://gia.sciencesconf.org/
- Time series days, https://project.inria.fr/tsdays/ (T. Guyet)

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- KDD (A. Termier, E. Fromont)
- ICTAI (T. Guyet)
- ECAI (T. Bouadi)
- ECML-PKDD (T. Guyet, A. Termier, E. Fromont, T. Bouadi)
- IJCAI (T. Guyet, A. Termier)
- SDM (A. Termier)
- MedInfo (T. Guyet)
- EGC (T. Bouadi, T. Guyet)
- HiPC (A. Termier)
- APIA (C. Largouët)
- CAp (R. Gaudel)
- ISWC (L. Galárraga)
- LDK (L. Galárraga)

10.1.2.2. Reviewer

- ECML-PKDD (C. Largouët)
- ICML (R. Gaudel)
- NeurIPS (R. Gaudel)
- LOD (R. Gaudel)
- ICTAI (L. Galárraga)
- BDA (L. Galárraga)

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

- Pattern Recognition (R. Gaudel)
- Revue d'intelligence artificielle (R. Gaudel)
- Data Mining and Knowledge Discovery (L. Galárraga, A. Termier)
- Semantic Web Journal (L. Galárraga)
- Remote Sensing (T. Guyet)
- Journal of Biomedical Informatics (T. Guyet)

10.1.4. Invited Talks

- Signatures: detecting and characterizing recurrent behavior in sequential data (A. Termier, March 2019). Invited talk to the Exploratory Data Analysis group of Jilles Vreeken, Saarebruck University.
- Pattern Mining with MDL (A. Termier, May 2019). Talk at the Dagstuhl seminal on Enumeration in Data Management.
- (Random) Search in a Structured Space (R.Gaudel, Oct. 2019). GdR IA course, Paris, France.
- Recommendation as a sequential process (R. Gaudel, June 2019). Obelix, Vannes, France.
- Litterature review: From computational complexity of function optimization to large scale Machine Learning (R. Gaudel, June 2019). Thematic season on the topic COMPLEXITY, IRISA, Rennes, France
- Interpretability in Classifiers (L. Galárraga, May 2019). Journée EGC&IA, Orsay, France.
- Mining sequential patterns with ASP (T. Guyet, January 2019). LERIA, Angers, France. 6/12/2019: Master Class at La Digital Tech Conference on "IA, Machine learning et Deep learning : démêlons les concepts !", Rennes.
- (E. Fromont) 25/11/2019: Participation in the panel organized by EIT Digital for the "Industrial Doctorate meetup: Boosting business with data science", Rennes.
- (E. Fromont) 8/10/2019: Invited speaker for Planète conférence on "Mythes et réalités de l'I.A.", Vannes.
- (E. Fromont) 9/09/2019: Participation in the workshop "Smart-cities et mobilités" of the Forum Européen d'Intelligence Artificielle Territoriale organised by the CHEMI, Rambouillet, Fr.
- (E. Fromont) 5/07/2019: Participation in the panel organized by Google numérique on "Intelligence artificielle, opportunités diverses et défis communs?", Rennes.
- (E. Fromont) 1/07/2019: Participation in the panel organized by EIT summer school "Unleashing the power of data for better cities" on "Future of smart cities and data innovation", Rennes.
- (E. Fromont) 6/06/2019: Invited speaker for Breizh Conseil on "Mythes et réalités de l'I.A.", Rennes (with a video teaser)
- (E. Fromont) 5/06/2019: Invited speaker for the "journées nationales MIAGE" (JNM2019) on "Mythes et réalités de l'I.A.", Rennes.
- (E. Fromont) 23/05/2019: Invited speaker for ESTIM NUMERIQUE on "Qu'est ce que l'I.A.", Rennes.
- (E. Fromont) 31/01/2019: Invited speaker for the Ecole Navale Science Day 2019 JSN'19 on "New Challenges in Computer Vision", Brest.
- (E. Fromont) 26/01/2019: Invited speaker for the Digital transformer Challenge (Introduction to AI), Rennes.

10.1.5. Scientific Expertise

Scikit-Mine. The team recently secured a two-year engineer position (Inria ADT grant) for working on MDL-based pattern mining algorithms. The goal of the project is to design a modern pattern mining library fully compatible with scikit-learn (the major data science library). The library will contain major MDL-based pattern mining algorithms of the state of the art, including those developed in the team (periodic pattern mining). The project will start in fall 2020.

10.1.6. Research Administration

- Alexandre Termier is member of the Scientific Committee of the "Environment and Agriculture" department of INRA (now INRAe).

- (E. Fromont) Member of an HCERES evaluation committee.

- (E. Fromont) Member of the executive board of the CominLabs LABEX for the "Data, IA and Robotics" scientific axis.

- (E. Fromont) Elected at the scientific council of the Société Savante Francophone d'Apprentissage Machine.

- (E. Fromont) Nominated at the CNRS INS2I ("INstitut des Sciences de l'Information et de leurs Interactions") scientific council (CSI)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Some members of the project-team LACODAM are also faculty members and are actively involved in computer science teaching programs in ISTIC, INSA and Agrocampus-Ouest. Besides these usual teachings LACODAM is involved in the following programs:

Master 2 IL, CCN: Option Machine Learning, Istic, University of Rennes 1, 32h (E. Fromont)

Master 2 DMV Module: Data Mining and Visualization, 13h, M2, Istic, University of Rennes 1 (A. Termier)

Master 2 Big Data, 30h, Master Datascience, University of Rennes 2 & Agrocampus Ouest (C. Largouët)

Master 2 DataViz with R, 10h, Master Datascience, University of Rennes 2 & Agrocampus Ouest (L. Bonneau de Beaufort)

Master 1 SIF: Option IA, Istic, 20h, University of Rennes 1 (A. Termier, E. Fromont, T. Bouadi)

Master 1 Scientific Programming, 25h, Agrocampus Ouest (C. Largouët)

Master 1 Data Management, 25h, Agrocampus Ouest (C. Largouët)

Master : R. Gaudel, Apprentissage profond, 9h eq. TD, M2, ENSAI, France

Master : R. Gaudel, Neural Networks, 4,5h eq. TD, école d'été, ENSAI, France

Master : R. Gaudel, Systèmes de recommandation, 27h eq. TD, M2, ENSAI, France

Master : R. Gaudel, Bandits Theory, 9h eq. TD, M2, ENSAI, France

Master : R. Gaudel, Bandits Theory, 4,5h eq. TD, école d'été, ENSAI, France

Master : R. Gaudel, INFO2, 30h eq. TD, M1, ENS, France

Master : T. Guyet, Spatial data science and GIS programming, Agrocampus-Ouest/Rennes University, France

10.2.2. Supervision

PhD (defended 25/09/2019): Guillaume Metzler, "Learning from Imbalanced Data: An Application to Bank Fraud Detection", 15/01/2016, E. Fromont, M. Sebban, A. Habrard.

PhD (defended 16/12/2019): Kevin Bascol, "Multi-source domain adaptation on imbalanced data:application to the improvement of chairlifts safety", 1/11/2016, E. Fromont,R. Emonet.

PhD (defended 16/12/2019): Maël Guillemé, "New Data Mining Approaches for Improving Energy Consumption in Factories", 03/10/2016, L. Rozé, V. Masson, A. Termier

PhD (defended 19/12/2019): Alban Siffer, "Data Mining Approaches for Cyber Attack Detection", 03/2016, P-A Fouque, A. Termier, C. Largouët.

PhD in progress: Maël Gueguen, "Improving the Performance and Energy Efficiency of Complex Heterogeneous Manycore Architectures with On-chip Data Mining", 01/11/2016, O. Sentieys, A. Termier

PhD in progress: Raphaël Gauthier, "Modelling of Nutrient Utilization and Precision Feeding of Lactating Sows", 01/11/2017, C. Largouët, J.-Y. Dourmad

PhD in progress: Kévin Fauvel, "Using Data mining Techniques for Improving Dairy Management", 01/10/2017, V. Masson, A. Termier, P. Faverdin

PhD in progress: Heng Zhang, "Deep Learning on Multimodal Data for the Supervision of Sensitive Sites", 03/12/2018, E. Fromont, S. Lefevre

PhD in progress: Yichang Wang, "Interpretable Shapelet for Anomaly Detection in Time Series", 15/04/2018, E. Fromont, S. Malinowski, R. Tavenard, R. Emonet

PhD in progress: Camille-Sauvanneary Gauthier, Session-aware Recommendation System, since March 15. 2019, advisors: É. Fromont, R. Gaudel, & B. Guilbot

PhD in progress: Erwan Bourrand, Interactive Data Mining for Root Cause Analysis of Performance Issues in Networks, advisors: E. Fromont, L. Galárraga, A. Termier.

PhD in progress: Gregory Martin, Data mining to optimize a free-floating car sharing service: E. Fromont, L. Rozé, A. Termier.

PhD in progress: Johanne Bakalara, Temporal models of care sequences for the exploration of medico-administrative data, advisors: E. Oger, O. Dameron, T. Guyet, A. Happe

PhD in progress: Colin Leverger, Management and forecasting of measures for server optimization in a cloud context, advisors: A. Termier, R. Marguerie, S. Malinowski, T. Guyet, L. Rozé.

PhD in progress: Nicolas Sourbier, Log Analysis Using Reinforcement Learning for Intrusion Detection, advisors: F. Majorczyke, O. Gesny, T. Ollivier, M. Pelcat, T. Guyet.

PhD in progress: Yiru Zhang, Modeling and management of imperfect preferences with the theory of belief functions, advisors: T. Bouadi, A. Martin.

10.2.3. Juries

- PhD Justine Reynaud (Orpailleur, Inria Nancy, Université de Lorraine): Découverte de définitions dans le web des données (L. Galárraga, examiner, december 2019).

- PhD Anes Bendimerad (INSA Lyon): Mining useful patterns in attributed graphs (A. Termier, reviewer, september 2019)

- HDR Frédéric Flouvat (Université de Nouvelle Calédonie): Extraction de motifs spatio-temporels: co-localisations, séquences et graphes dynamiques attribués (A. Termier, reviewer, october 2019)

- HDR Christine Largouët (Université de Rennes 1): Intelligence Artificielle pour l'aide à la décision des systèmes dynamiques: diagnostic, prévision, recommandation d'actions (A. Termier, examiner, december 2019)

- PhD Ricardio Sperandio (Université de Rennes 1): Time series retrieval using DTW-preserving shapelets (A. Termier, examiner, december 2019)

- PhD Raphaël Jakse (Université Grenoble Alpes): Interactive runtime verification (A. Termier, reviewer, december 2019)

- (E. Fromont) Ziyu GUO, Marseille 5/11/2019 (committee member); Jordan Frery, Saint-Etienne 26/09/2019 (committee member, president); Julien Salotti, Lyon 24/09/2019 (reviewer); Xuhong Li, Compiègne (committee member, president) 10/99/2019; Michele Linardi, Paris (committee member) 21/08/2019; Pauline Luc, Grenoble (committee member, president) 25/06/2019, Diogo Luvizon, Cergy (reviewer) 8/04/2019; Zaruhi Alaverdyan, Lyon (committee member, president) 18/01/2019

- PhD Trung-Dung Le (Shaman, IRISA, Université de Rennes 1): Gestion de masses de données dans une fédération de nuages informatiques (T. Bouadi, examiner, july 2019)

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- (E. Fromont) 2018- ?: Nominated at the scientific council of the "Fondation Blaise Pascal" (dedicated to scientific mediation, funded by Inria)

10.3.2. Education

- In 2019, Alexandre Termier and Elisa Fromont are co-heads of a special training for high school teachers, ordered by the Ministry of Education. From September 2019, French high school students will have the opportunity to have reinforced Computer Science courses, with the same importance as Mathematics or Physics for example. As new teachers are not yet hired to teach theses courses, there was thus an urgent need to train existing high school teachers so that they can train the new teachers. A national formation has been set up, with some coordination between all universities. Alexandre and Elisa represent the University of Rennes, which is the formation center for all of Britany. The formation load is 125 teaching hours, to a group of 71 high school teachers.
- Elisa Fromont is also leading the set up of a CAPES in University of Rennes 1, which will allow to prepare future high school teachers in computer science.

10.3.3. Interventions

- A. Termier participated at a mediation action on Artificial Intelligence for a general technical public, the "Trial of metro car number 42", at the Digital Tech in Rennes (november 2019, https://www.ladigital.tech/proces-rame-metro-numero-42/)
- Alexandre Termier did two 2h interventions at the Emile Zola high school, aimed at math teachers. The topics were "Artificial Intelligence" and "Big Data".
- (E. Fromont) 6/12/2019: Master Class at La Digital Tech Conference on "IA, Machine learning et Deep learning : démêlons les concepts !", Rennes.

<p align="center" style="color:red">LINKMEDIA Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Laurent Amsaleg is general co-chair of ACM Intl. Conf. on Multimedia 2019.
- Guillaume Gravier is technical program co-chair for ACM Intl. Conf. on Multimedia 2019.

10.1.1.2. Member of the Organizing Committees

- Yannis Avrithis is workshops co-chair for ACM Intl. Conf. on Multimedia 2019.
- Simon Malinowski is member of the organizing commitee of the Advanced Analytics and Learning on Temporal Data workshop (Wurzburg, Sept. 2019)
- Vincent Claveau was Finance chair of SIGIR 2019, (Paris, July 2019)

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Vincent Claveau was co-chair of the text-mining workshop DeFT in Toulouse, July 2019

10.1.2.2. Member of the Conference Program Committees

- Laurent Amsaleg was a PC member of: Extraction et Gestion de Connaissances, ACM International Conference on Multimedia Retrieval, Multimedia Modeling, Content-Based Multimedia Indexing, IEEE International Conference on Multimedia & Expo, International Conference on Similarity Search and Applications, Multimedia Information Retrieval and Applications.
- Guillaume Gravier was PC member of: European Conf. on Information Retrieval, Intl. Symposium on Multimedia, ACM Intl. Conf. on Multimedia Retrieval, IEEE Workshop on Multimedia Modeling.
- Pascale Sébillot was a PC member of: Annual Meeting of the Association for Computational Linguistics (ACL), International Joint Conference on Artificial Intelligence on Artificial Intelligence (IJCAI), European Conference on Information Retrieval (ECIR), International Conference on MultiMedia Modeling (MMM), Terminologie et intelligence artificielle (TIA) workshop with TALN.
- Yannis Avrithis was PC member of: IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), International Conference on Computer Vision (ICCV). He has been selected as Outstanding Reviewer of ICCV (91 selected out of 2506 reviewers in total).
- Vincent Claveau was a PC member of: European Conference on Information Retrieval (ECIR), EMNLP (demo), ACL (demo), TexMine workshop with EGC, DeFT workshop with TALN, TalMed workshop with MEDINFO, CORIA.
- Simon Malinowski is member of the program commitee of the Advanced Analytics and Learning on Temporal Data workshop (Wurzburg, Sept. 2019)
- Ewa Kijak was a PC member of: ACM Intl. Conf. on Multimedia (area chair), Intl. Conf. on Content-Based Multimedia Indexing (CBMI)
- Teddy Furon was a PC member of: IEEE Workshop on Information Forensics and Security (WIFS), Int. Conf. on Similarity Search and Applications (SISAP), IEEE Int. Conf. on Acoustic Speech and Signal Processing (ICASSP), ACM Information Hiding & Multimedia Security (IHMMSEC).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Pascale Sébillot is editor of the Journal Traitement Automatique des Langues.
- Pascale Sébillot is member of the editorial board of the Journal Traitement Automatique des Langues.
- Vincent Claveau is Chief Editor of the ISTE journal RIDoWS
- Vincent Claveau is member of the editorial board of the journal Traitement Automatique des Langues (TAL)

10.1.3.2. Reviewer - Reviewing Activities

- Pascale Sébillot reviewed for Traitement Automatique des Langues.
- Vincent Claveau was a reviewer for: Multimedia Tools and Applications, Technique et Sciences Informatiques, Documents numériques, Traitement Automatique des Langues, RIDoWS
- Ewa Kijak was a reviewer for: Multimedia Tools and Applications, Remote Sensing journal
- Laurent Amsaleg was a reviewer for: IEEE Transactions on Information Forensics and Security, ACM Transactions on Information Systems.
- Pascale Sébillot was a reviewer for: Conference Traitement Automatique des Langues Naturelles (TALN).
- Simon Malinowski was a reviewer for the Data Mining and Knowledge Discovery (DAMI) journal, Springer.
- Teddy Furon was a reviewer for: Entropy (MDPI), IEEE Trans. on Dependable and Secure Computing, IEEE Trans. on Information Forensics and Security, IEEE Trans. on Pattern Analysis and Machine Intelligence, IEEE Trans. on Image Processing.

10.1.4. Invited Talks

- Vincent Claveau gave an invited talk at "La vie sociale du fake sur les espaces numériques", Tours, France, nov 2019.
- Ewa Kijak gave a talk on "Tampering detection in images to fight fake news" for the GFAIH (Global Forum on Artificial Intelligence for Humanity) in Paris, during the workshop "AI and information disorder".

10.1.5. Leadership within the Scientific Community

- Laurent Amsaleg is a member of the Steering Committee of SISAP for the 2016-2020 term
- Laurent Amsaleg is a member of the Steering Committee of ACM Multimedia for the 2020-2023 term
- Guillaume Gravier is a member of the scientific board of the pre-GDR Traitement Automatique des Langues.
- Pascale Sébillot is a member of the permanent steering committee of Conf. francophone Traitement Automatique des Langues Naturelles.
- Pascale Sébillot is a member of the board of the pre-GDR Traitement Automatique des Langues, leader of the Intermodality and Multimodality working group.
- Vincent Claveau is deputy head of the GdR CNRS MaDICS https://www.madics.fr
- Vincent Claveau is the finance head of ARIA https://www.asso-aria.org

10.1.6. Scientific Expertise

- Laurent Amsaleg has been involved in the writing of the "Rapport de la mission sur les outils de reconnaissance des contenus protégés et les plateformes de partage en ligne : état de l'art et propositions. Conseil supérieur de la propriété littéraire et artistique, Hadopi".

- Guillaume Gravier was auditioned by the EC for the report "Towards European Media Sovereignty: An industrial media strategy to leverage data, algorithm and artificial intelligence" by Guillaume Klossa, special advisor to EC VP Andrus Ansip.
- Guillaume Gravier was appointed by Technical University of Delft as an evaluator for a professorship position.
- Teddy Furon is scientific advisor for the startup Lamark.

10.1.7. Research Administration

- Guillaume Gravier is deputy director of the Institut de Rercherche en Informatique et Systèmes Aléatoires (IRISA, UMR 6074).
- Guillaume Gravier is a member of the Board of the technology cluster Images & Réseaux.
- Pascale Sébillot was a member of the Conseil National des Universités 27th section (computer science) until Nov 2019.
- Pascale Sébillot is the director of the Computer Science Laboratory, INSA Rennes.
- Pascale Sébillot is the deputy director of the Scientific Advisory Committee of IRISA UMR 6074.
- Pascale Sébillot is a member of the theses advisory committee of the MathSTIC doctoral school.
- Pascale Sébillot is a member of the board of the MathSTIC doctoral school.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: Laurent Amsaleg & Teddy Furon, Indexation multimédia, 10h, L3-cours invité, ENS Rennes, France

Licence: Laurent Amsaleg, Bases de données avancées, 2h, L3-option génie mathématique, INSA Rennes, France

Licence: Guillaume Gravier, Databases, 30h, L2, INSA Rennes, France

Licence: Guillaume Gravier, Probability and statistics, 16h, L3, INSA Rennes, France

Licence: Guillaume Gravier, Natural Language Processing, 12h, L3 & M1, INSA Rennes, France

Licence: Pascale Sébillot, Natural Language Processing, 10h, L3, INSA Rennes, France

Master: Laurent Amsaleg, Bases de données avancées, 25h, M2, INSA Rennes, France

Master: Guillaume Gravier, Data analysis and probabilistic modeling, 30h, M2, University Rennes 1, France

Master: Pascale Sébillot, Natural Language Processing, 6h, M1, INSA Rennes, France

Master: Yannis Avrithis, Deep learning for vision, 20h, M2 SIF, France

Master: Yannis Avrithis, Computer vision, 30h, National and Kapodistrian University of Athens, Greece

Master : Simon Malinowski, Predictive analytics, 48h, M1 MIAGE, Univ. Rennes 1

Master : Simon Malinowski, Machine Learning, 32h, M2 MIAGE, Univ. Rennes 1

Master : Simon Malinowski, Symbolic data mining, 12h, M2 MIAGE, Univ. Rennes 1

Engineering school: Vincent Claveau, Machine Learning, 18h, 3rd year, INSA Rennes, France

Master: Vincent Claveau, Information Retrieval, 10h, M2 MIAGE, Univ. Rennes, France

Master: Ewa Kijak, Image processing, 55h, M1, ESIR, France

Master: Ewa Kijak, Supervised machine learning, 21h, M2R, University Rennes 1, France

Master: Ewa Kijak, Supervised machine learning, 15h, M2, University Rennes 1, France

Master: Ewa Kijak, Image classification, 45h, M1, ESIR, France

Master: Ewa Kijak, Image indexing, 17h, M2, University Rennes 1, France

Master: Ewa Kijak, Computer vision, 22h, M2, ESIR, France

Master: Teddy Furon, Rare Events, 20h, M2, Insa Rennes, France

10.2.2. Supervision

PhD in progress: Mathieu Laroze, Active learning on adaptive representations for object detection in high-resolution imaging, June 2016, Romain Dambreville, Chloe Friguet, Ewa Kijak & Sébastien Lefevre (with OBELIX, IRISA team)

PhD in progress: Hanwei Zhang, Deep Learning in Adversarial Contexts, October 2017, Laurent Amsaleg, Yannis Avrithis, Teddy Furon & Ewa Kijak

PhD in progress: Marzieh Gheisari Khorasgani, Secure identification in the Internet of Things, January 2018, Laurent Amsaleg & Teddy Furon

PhD in progress: Antoine Perquin, Universal speech synthesis through embeddings of massive heterogeneous data, October 2017, Laurent Amsaleg, Gwénolé Lecorvé & Damien Lolive (with Expression, IRISA team)

PhD in progress: Benoit Bonnet, Adversarial images, November 2019, Teddy Furon & Patrick Bas

PhD in progress: Tong Xue, Visualization and collaborative analysis of document collections and extracted knowledge for data journalism, October 2018, Laurent Amsaleg & Anastasia Bezerianos

PhD in progress: Mikail Demirdelen, User-adapted multi-document multimedia synthesis, started October 2016, Guillaume Gravier and Pascale Sébillot

PhD in progress: Cheikh Brahim El Vaigh, Incremental content to data linking leveraging ontological knowledge in data journalism, started October 2017, Guillaume Gravier, Pascale Sébillot and François Goasdoué (with CEDAR, Inria team)

PhD in progress: Cyrielle Mallart, Incremental dynamic construction of knowledge graphs from text mining, started December 2018, Guillaume Gravier, Michel Le Nouy (Ouest-France), Pascale Sébillot

PhD in progress: François Torregrossa, Heterogeneous data embedding for professional search, started November 2018, Robin Allessiardo (So Local), Vincent Claveau, Guillaume Gravier

PhD in progress: Oriane Siméoni, Invariance and supervision in visual learning, started October 2016, Yannis Avrithis & Guillaume Gravier

PhD in progress: Yann Lifchitz, Few shot learning for object recognition in aerial images. Started March 2018, Yannis Avrithis & Sylvaine Picard (Safran Tech).

PhD in progress: Zhaohui Yang, learning visual models with minimal human supervision, started January 2018, Miaojing Shi & Yannis Avrithis & Chao Xu (Peking University, Beijing)

PhD in progress: Raquel Almeida, Learning hierarchichal models for multimedia data, started January 2019, Ewa Kijak & Simon Malinowski & Laurent Amsaleg

PhD defended: Cédric Maigrot, Détection de fausses informations dans les réseaux sociaux, defended April 2019, Laurent Amsaleg, Vincent Claveau & Ewa Kijak. See [1].

PhD defended: Ricardo Carlini-Sperandio, Unsupervised motif mining in multimedia time series, defended December 2019, Laurent Amsaleg.

10.2.3. Juries

- Guillaume Gravier was involved in the following juries:
  - PhD Eloi Zabrocki, Paris-Sorbonne Université, Nov. 2019, reviewer
  - HDR Benoît Favre, Aix-Marseille Université, Nov. 2019, reviewer
- Pascale Sébillot was involved in the following juries:
  - HDR Natalia Grabar, Université Paris-Saclay, May 2019, member

- Vincent Claveau was reviewer for the mid-term PhD auditions of: Ygor Gallina (LS2N), Tsanta Randriatsitohaina (LIMSI), Oussama Ahmia (IRISA), Hyun Jung Kang (MoDyCo)
- Vincent Claveau was a member of the PhD jury of C. Artaud (Univ. La Rochelle)
- Teddy Furon was reviewer for the mid-term PhD auditions of: Alexandre Sablayrolles (Inria Grenoble - Facebook FAIR), Solène Bernard (CRIStAL Lille)
- Teddy Furon was a member of the PhD jury of Clément Feutry (CentraleSupelec Paris).

10.3. Popularization

10.3.1. Articles and contents

- Vincent Claveau was interviewed for his activities about fake news detection in: hors-série 199 de Sciences et avenir Oct/Nov 2019; Sciences Ouest n375; Télérama; Science et vie; Science et avenir; 01net N 894.
- Vincent Claveau was interviewed for his activities about text mining the Grand Débat contributions: AEG infos; Ouest France.
- Ewa Kijak and Vincent Claveau were interviewed for the TV show Télématin Science, nov 2019.
- Ewa Kijak was interviewed about fake news and deepfake detection in: AFP, Le Télégramme, Data Analytics Post, Sciences Ouest n375, Le Temps, FranceTV Info (TV show "Vrai ou Fake"), tv5 monde
- Ewa Kijak was invited on the radio show "La méthode scientifique", France culture, on "Deepfake : faut-il le voir pour le croire ?"
- Teddy Furon was interviewed by Data Analytics Post about the connection of deepfake and watermarking.

10.3.2. Education

LINKMEDIA has been actively involved into the "L codent, L créent" initiative with Cyrielle Mallart and Oriane Siméoni.

10.3.3. Interventions

- Guillaume Gravier gave an invited talk entitled "Strengths, weaknesses and limits of AI illustrated" at the West Data Festival (professional forum, 100 attendees)
- Ewa Kijak gave an invited talk entitled "Fighting Fake news and deep fakes" at the CEPIC congress (Coordination of European Picture Agencies Stock, Press and Heritage)

<p style="text-align: center;">MIMETIC Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. Member of the Organizing Committees

- Marc Christie, Co-chair and co-organizer of the 8th Eurographics WICED event (Workshop on Intelligent Cinematography and Editing), 2019
- Anne-Hélène Olivier, Co-organizer of the workshop "Modeling and Animating Realistic Crowds and Humans (MARCH)" during the AIVR Conference, San Diego, USA, December 2019
- Anne-Hélène Olivier, Co-Organizer of the Symposium " Going from here to there and beyond: Fundamental theories and applications from what we have learned about human navigation of cluttered environments", ISPGR 2019, Edinburgh, Scotland, July 2019
- Anne-Hélène Olivier, Co-organizer of the workshop "Virtual Humans and Crowds in Immersive Environments" (VHCIE) during IEEE VR Conference Osaka Japan, March 2019

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- Ludovic Hoyet, Co-Program Chair of the 19th ACM Symposium on Applied Perception, Barcelona, September 2019
- Ludovic Hoyet, Co-Workshop Chair for of the 32nd International Conference on Computer Animation and Social Agents, Paris, July 2019
- Ludovic Hoyet, Animation & Simulation Area Program Chair, International Conference on Computer Graphics Theory and Applications 2019, Prague, Czech Republic, Feb. 2019
- Marc Christie, Area Chair, ACM TVX 2019, International Conference on Interactive Experiences for Television and Online Video
- Anne-Hélène Olivier, Conference Paper co-chair, IEEE Virtual Reality Conference, Osaka Japan, March 2019

10.1.2.2. Member of the Conference Program Committees

- Ludovic Hoyet, ACM Motion Interaction in Games MIG 2019
- Marc Christie, ACM Motion Interaction in Games MIG 2019
- Marc Christie, ACM Interactive Experiences for Television and Online Video TVX 2019
- Anne-Hélène Olivier, ACM Motion Interaction in Games MIG 2019
- Anne-Hélène Olivier, ACM Symposium on Applied Perception SAP 2019
- Anne-Hélène Olivier, ACM Symposium on Virtual Reality Software and Technology VRST, Technical Papers 2019
- Franck Multon, ACM Motion Interaction in Games MIG 2019
- Franck Multon, Computer Animation and Social Agents CASA2019

10.1.2.3. Reviewer

- Ludovic Hoyet, ISVC 2019, JFIG 2019, CRDH Workshop (AIVR 2019), VHCIE Workshop (IEEE VR 2019)
- Franck Multon, CASA 2019, MIG 2019

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Anne-Hélène Olivier, Review Editor in Frontiers in Virtual Reality - Technologies for VR
- Franck Multon, Presence, MIT Press
- Franck Multon, Computer Animation and Virtual Worlds CAVW, John Wiley
- Georges Dumont, Review Editor in Frontiers in Virtual Reality - Technologies for VR

10.1.3.2. Reviewer - Reviewing Activities

- Charles Pontonnier - Applied Science, Applied ergonomics, Multibody Systems Dynamics, Sensors, Complexity
- Marc Christie, ACM SIGGRAPH 2019, ACM SIGGRAPH ASIA 2019, TVCG
- Ludovic Hoyet, IEEE Transactions on Visualization and Computer Graphics, Neuroscience, Journal of Virtual Reality and Broadcasting, Journal on Multimodal User Interfaces
- Anne-Hélène Olivier, Virtual Reality, Gait and Posture
- Franck Multon, Virtual Reality, The Visual Computer, IEEE Robotics and Automation, International Journal of Industrial Ergonomics, Journal of Sports Sciences, Journal of Ergonomics
- Armel Crétual, Clinical Biomechanics, Medical and Biological Engineering and Computing, PlosONE, Sensors
- Georges Dumont, Journal of Biomechanics

10.1.4. Invited Talks

- Marc Christie, Workshop AI in Media at European Broadcast Union, Manchester 2019.
- Anne-Hélène Olivier, Sport Unlimitech, Lyon, September 2019.

10.1.5. Scientific Expertise

- Franck Multon, expertise for I-Site NExT from Nantes for the "International Research Partnerships" call for projects
- Franck Multon, FRQNT (Canada) for the evaluation of 4 collaborative projects in Quebec on the topic "computer sciences - human-robot interaction"

10.1.6. Research Administration

- Ludovic Hoyet is an elected member of the Board of Managers for the French Computer Graphics Association (Association Française d'Informatique Graphique), since Oct. 2017
- Ludovic Hoyet is an elected member of the Inria Laboratory Board, since Sept. 2019.
- Franck Multon is the Inria national coordinator for digital sciences for Sports, since Sept 2018

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master : Franck Multon, co-leader of the IEAP Master (1 and 2) "Ingénierie et Ergonomie de l'Activité Physique", STAPS, University Rennes2, France
- Master : Franck Multon, "Santé et Performance au Travail : étude de cas", leader of the module, 30H, Master 1 M2S, University Rennes2, France
- Master : Franck Multon, "Analyse Biomécanique de la Performance Motrice", leader of the module, 30H, Master 1 M2S, University Rennes2, France
- Master: Charles Pontonnier, "Numerical simulation of polyarticulated systems", leader of the module, 22H, M1 Mechatronics, Ecole Normale Supérieure de Rennes, France

- Master: Charles Pontonnier, Responsible of the internships of students (L3 and M1), 15H, Ecole Normale Supérieure de Rennes, France
- Master: Charles Pontonnier, Reearch projects, 20H, Ecole Normale Supérieure de Rennes, France
- Master : Georges Dumont, Responsible of the second year of the master Engineering of complex systems, École Normale Supérieure de Rennes and Rennes 1 University, France
- Master : Georges Dumont, Mechanical simulation in Virtual reality, 36H, Master Engineering of complex systems and Mechatronics, Rennes 1 University and École Normale Supérieure de Rennes, France
- Master : Georges Dumont, Mechanics of deformable systems, 40H, Master, École Normale Supérieure de Rennes, France
- Master : Georges Dumont, oral preparation to agregation competitive exam, 20H, Master, École Normale Supérieure de Rennes, France
- Master : Georges Dumont, Vibrations in Mechanics, 10H, Master, École Normale Supérieure de Rennes, France
- Master : Georges Dumont, Finite Element method, 12H, Master, École Normale Supérieure de Rennes, France
- Master : Ludovic Hoyet, Motion Analysis and Gesture Recognition, 12h, INSA Rennes, France
- Master : Ludovic Hoyet, Réalité Virtuelle pour l'Analyse Ergonomique, Master Ingénierie et Ergonomie des Activités Physique, 21h, University Rennes 2, France
- Master : Anne-Hélène Olivier, co-leader of the APPCM Master (1 and 2) "Activités Physiques et Pathologies Chroniques et Motrices", STAPS, University Rennes2, France
- Master : Anne-Hélène Olivier, "Biostatstiques", 21H, Master 2 APPCM/IEAP, University Rennes2, France
- Master : Anne-Hélène Olivier, "Evaluation fonctionnelle des pathologies motrices", 3H Master 2 APPCM, University Rennes2, France
- Master : Anne-Hélène Olivier, "Maladie neurodégénératives : aspects biomécaniques", 2H Master 1 APPCM, University Rennes2, France
- Master : Anne-Hélène Olivier, "Biostatstiques", 7H, Master 1 EOPS, University Rennes2, France
- Master : Anne-Hélène Olivier, "Méthodologie", 10H, Master 1 IEAP/APPCM, University Rennes2, France
- Master : Anne-Hélène Olivier, "Contrôle moteur : Boucle perceptivo-motrice", 3H, Master 1IEAP, Université Rennes 2, France
- Master: Fabrice Lamarche, "Compilation pour l'image numérique", 29h, Master 1, ESIR, University of Rennes 1, France
- Master: Fabrice Lamarche, "Synthèse d'images", 12h, Master 1, ESIR, University of Rennes 1, France
- Master: Fabrice Lamarche, "Synthèse d'images avancée", 28h, Master 1, ESIR, University of Rennes 1, France
- Master: Fabrice Lamarche, "Modélisation Animation Rendu", 36h, Master 2, ISTIC, University of Rennes 1, France
- Master: Fabrice Lamarche, "Jeux vidéo", 26h, Master 2, ESIR, University of Rennes 1, France
- Master: Fabrice Lamarche, "Motion for Animation and Robotics", 9h, Master 2 SIF, ISTIC, University of Rennes 1, France.
- Master : Armel Crétual, "Méthodologie", leader of the module, 20H, Master 1 M2S, University Rennes2, France

- Master : Armel Crétual, "Biostatstiques", leader of the module, 30H, Master 2 M2S, University Rennes2, France
- Master : Richard Kulpa, "Boucle analyse-modélisation-simulation du mouvement", 27h, leader of the module, Master 2, Université Rennes 2, France
- Master : Richard Kulpa, "Méthodes numériques d'analyse du geste", 27h, leader of the module, Master 2, Université Rennes 2, France
- Master : Richard Kulpa, "Cinématique inverse", 3h, leader of the module, Master 2, Université Rennes 2, France
- Master: Marc Christie, "Multimedia Mobile", Master 2, leader of the module, 32h, Computer Science, University of Rennes 1, France
- Master: Marc Christie, "Projet Industriel Transverse", Master 2, 32h, leader of the module, Computer Science, University of Rennes 1, France
- Master: Marc Christie, "Modelistion Animation Rendu", Master 2, 16h, leader of the module, Computer Science, University of Rennes 1, France
- Master: Marc Christie, "Advanced Computer Graphics", Master 1, 10h, leader of the module, Computer Science, ENS, France
- Licence : Franck Multon, "Ergonomie du poste de travail", Licence STAPS L2 & L3, University Rennes2, France
- Licence: Charles Pontonnier, "Lagrangian Mechanics" , leader of the module, 22H, L3 Mechatronics, Ecole Normale Supérieure de Rennes, France
- Licence: Charles Pontonnier, "Serial Robotics", leader of the module, 24H, L3 Mechatronics, , Ecole Normale Supérieure de Rennes, France
- Licence : Anne-Hélène Olivier, "Analyse cinématique du mouvement", 100H , Licence 1, University Rennes 2, France
- Licence : Anne-Hélène Olivier, "Anatomie fonctionnelle", 7H , Licence 1, University Rennes 2, France
- Licence : Anne-Hélène Olivier, "Effort et efficience", 12H , Licence 2, University Rennes 2, France
- Licence : Anne-Hélène Olivier, "Locomotion et handicap", 12H , Licence 3, University Rennes 2, France
- Licence : Anne-Hélène Olivier, "Biomécanique spécifique aux APA", 8H , Licence 3, University Rennes 2, France
- Licence : Anne-Hélène Olivier, "Biomécanique du viellissement", 12H , Licence 3, University Rennes 2, France
- Licence: Fabrice Lamarche, "Initiation à l'algorithmique et à la programmation", 56h, License 3, ESIR, University of Rennes 1, France
- License: Fabrice Lamarche, "Programmation en C++", 46h, License 3, ESIR, University of Rennes 1, France
- Licence: Fabrice Lamarche, "IMA", 24h, License 3, ENS Rennes, ISTIC, University of Rennes 1, France
- Licence : Armel Crétual, "Analyse cinématique du mouvement", 100H, Licence 1, University Rennes 2, France
- Licence : Richard Kulpa, "Biomécanique (dynamique en translation et rotation)", 48h, Licence 2, Université Rennes 2, France
- Licence : Richard Kulpa, "Méthodes numériques d'analyse du geste", 48h, Licence 3, Université Rennes 2, France
- Licence : Richard Kulpa, "Statistiques et informatique", 15h, Licence 3, Université Rennes 2, France

10.2.2. Supervision

PhD in progress (beginning September 2017): Pierre Puchaud, Développement d'un modèle musculo-squelettique générique du soldat en vue du support de son activité physique, Ecole normale supérieure, Charles Pontonnier & Nicolas Bideau & Georges Dumont

PhD in progress (beginning January 2019): Nils Hareng, simulation of plausible bipedal locomotion of human and non-human primate, University Rennes2, Franck Multon, & Bruno Watier (CNRS LAAS in Toulouse)

PhD in progress (beginning January 2019): Nicolas Olivier, Adaptive Avatar Customization for Immersive Experience, Cifre InterDigital, Franck Multon, Ferran Arguelaget (Hybrid team), Quentin Avril (InterDigital), Fabien Danieau (InterDigital)

PhD in progress (beginning September 2017): Lyse Leclerc, Intérêts dans les activités physiques du rétablissement de la fonction inertielle des membres supérieurs en cas d'amputation ou d'atrophie, Armel Crétual, Diane Haering

PhD in progress (beginning September 2018) : Jean Basset, Learning Morphologically Plausible Pose Transfer, Inria, Edmond Boyer (Morpheo Inria Grenoble), Franck Multon

PhD in progress (beginning October 2018): Hiep Pham Tuan, Heterogeneous data fusion for safeguarding of cultural heritage of dance, University Reims Champagne Ardennes, Celine Loscos (University Reims), Franck Multon

PhD in progress (beginning September 2017): Simon Hilt, Haptique Biofidèle pour l'Interaction en réalité virtuelle, Ecole normale supérieure, Georges Dumont, Charles Pontonnier

PhD in progress (beginning September 2018): Olfa Haj Mamhoud, Monitoring de l'efficience gestuelle d'opérateurs sur postes de travail, University Rennes 2, Franck Multon, Georges Dumont, Charles Pontonnier

PhD in progress (beginning September 2019) : Claire Livet, Dynamique contrainte pour l'analyse musculo-squelettique en temps rapide : vers des méthodes alternatives d'estimation des forces musculaires mises en jeu dans le mouvement humain, Ecole normale supérieure, Georges Dumont, Charles Pontonnier

PhD in progress (beginning september 2019) : Louise Demestre, simulation MUsculo-squelettique et Structure Elastique pour le Sport (MUSES), Ecole normale supérieure, Georges Dumont, Charles Pontonnier, Nicolas Bideau, Guillaume Nicolas

PhD in progress: Diane Dewez, Avatar-Based Interaction in Virtual Reality, Oct. 2018, Ferran Argelaguet, Ludovic Hoyet, Anatole Lécuyer. Coll. with Hybrid team.

PhD in progress: Rebecca Fribourg, Enhancing Avatars in Virtual Reality through Control, Interactions and Feedback, Sept. 2017, Ferran Argelaguet, Ludovic Hoyet, Anatole Lécuyer. Coll. with Hybrid team

PhD in progress: Florian Berton, Design of a virtual reality platform for studying immersion and behaviours in aggressive crowds, Nov. 2017, Ludovic Hoyet, Anne-Hélène Olivier, Julien Pettré. Coll with Rainbow team

PhD in progress: Benjamin Niay, A framework for synthezing personalised human motions from motion capture data and perceptual information, Oct. 2018, Ludovic Hoyet, Anne-Hélène Olivier, Julien Pettré. Coll. with Rainbow team

PhD in progress: Alberto Jovane, Modélisation de mouvements réactifs et comportements non verbaux pour la création d'acteurs digitaux pour la réalité virtuelle, Sept. 2019, Marc Christie, Ludovic Hoyet, Claudio Pacchierotti, Julien Pettré. Coll. with Rainbow team

PhD in progress: Adèle Colas, Modélisation de comportements collectifs réactifs et expressifs pour la réalité virtuelle, Nov. 2019, Ludovic Hoyet, Anne-Hélène Olivier, Claudio Pacchierotti, Julien Pettré. Coll. with Rainbow team

PhD in progress: Hugo Brument, Toward user-adapted interactions techniques based on human locomotion laws for navigating in virtual environments, Oct. 2018, Anne-Hélène Olivier, Ferran Argelaguet, Maud Marchal. Coll. with Hybrid team

PhD in progress: Lyse Leclercq, Intérêts dans les activités physiques du rétablissement de la fonction inertielle des membres supérieurs en cas d'amputation ou d'atrophie, Sep. 2017, Armel Crétual, Diane Haering

PhD in progress: Florence Gaillard, Validation d'un protocole d'analyse 3D du mouvement des membres supérieurs en situation écologique chez les enfants ayant une Hémiplégie Cérébrale Infantile, Armel Crétual, Isabelle Bonan

PhD in progress: Karim Jamal, Effets des stimulations sensorielles par vibration des muscles du cou sur les perturbations posturales secondaires aux troubles de la représentation spatiale après un accident vasculaire cérébral, Sep 2016, Isabelle Bonan, Armel Crétual

PhD in progress: Carole Puil, Impact d'une stimulation plantaire orthétique sur la posture d'individus sains et posturalement déficients au cours de la station debout, et lors de la marche, Sep. 2018, Armel Crétual, Anne-Hélène Olivier

PhD: Charles Faure, Analyse en réalité virtuelle de la coopération lors d'une interception de balle : interaction et interférence, Sep. 2016, defense 17/01/2019, Richard Kulpa, Benoit Bideau

PhD in progress: Théo Perrin, Evaluation de la perception de l'effort en réalité virtuelle pour l'entraînement sportif, Sep. 2017, Richard Kulpa, Benoit Bideau

PhD in progress: Annabelle Limballe, Anticipation dans les sports de combat : la réalité virtuelle comme solution innovante d'entraînement, Sep. 2019, Richard Kulpa & Benoit Bideau

PhD in progress: Alexandre Vu, Evaluation de l'influence des feedbacks sur la capacité d'apprentissage dans le cadre d'interactions complexes entre joueurs et influence de ces feedbacks en fonction de l'activité sportive , Sep. 2019, Richard Kulpa & Benoit Bideau

10.2.3. Juries

- PhD defense : École Nationale Supérieure d'Arts et Métiers, Samuel Hybois. « Approche numérique pour l'optimisation personnalisée des réglages d'un fauteuil roulant manuel ». 2019-10-14. Georges Dumont, President

- PhD defense : Université de Grenoble-Alpes, Chaowanan Khundam. « Évaluation de l'usage de la réalité virtuelle pour la promotion de patrimoine historique-Evaluation of the virtual reality usage for the promotion of historical heritage ». March 2019. Georges Dumont, President.

- PhD defense: University Toulouse 3, Guillaume Fumery, "Biomécanique du transport collectif de charges, vers une application clinique", january 2019. Franck Multon, Referee

- PhD defense: INSA Lyon, Samuel Carensac, "Contrôle physique de mouvement de personnages virtuels en environnement complexe", July 2019. Franck Multon, Referee

- HDR defense: Sorbonne University, Jonathan Savin, "Simulation de la variabilité du mouvement induite par la fatigue musculaire pour la conception ergonomique de postes de travail", november 2019, Franck Multon, Examiner

- HDR defense: University Lyon 1, Thomas Robert, "Analyse et simulation du maintien de l'équilibre debout chez l'humain", November 2019, Franck Multon, President

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- Franck Multon is coordinating the national action of Inria in sports

10.3.2. Interventions

- Charles Pontonnier - "La simulation musculo-squelettique pour la robotique" - 4èmes rencontres interdisciplinaires Innovation, Robotique et Santé, December 2019
- Franck Multon - "fête de la Science" Rennes in Champs Libres for two days (October 4th and 5th) demos in the field of VR for sports for a wide public audience
- Franck Multon - "fête de la science" Paris (October 5th), stand-up talk about VR & Sports to the wide public audience, interview with "Esprit Sorcier" for a web-Tv diffusion
- Franck Multon - Sport Unlimitech Lyon, a large event about new technologies for sports (September 19-21), with keynote talks/round tables, managing the booths of Inria
- Armel Crétual - "La science sur les planches", Spectacle "Marcher!!!" avec le Collège Théophile Briant de Tinténiac et la compagnie Kali&Co
- Richard Kulpa - "La réalité virtuelle pour le sport, ludique mais encore ?", Mardis de l'Espace des Sciences, December 2019
- Richard Kulpa - Inria booth at Sport Unlimitech Lyon, a large event about new technologies for sports, September 2019
- Richard Kulpa - Booth at FIFA Women's World Cup 2019
- Anthony Sorel - Inria booth at Sport Unlimitech Lyon, a large event about new technologies for sports, September 2019

10.3.3. Internal action

- Franck Multon - "Journes scientifiques Inria", June 5-6th, plenary talk entitled "La réalité virtuelle pour le sport : un jeu vraiment sérieux ?"
- Franck Multon, Ronan Gaugne - "20 years of Immersia": Event organized by Inria Rennes/IRISA center, November 2019, plenary talks

MINGUS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. Member of the Organizing Committees

- F. Castella organized the MINGuS team meeting, Dinard, december 2019. [15 participants]
- P. Chartier, N. Crouseilles, M. Lemou and F. Méhats organized a workshop on "Asymptotic methods and numerical approximations of multi-scale evolution problems, and uncertainty quantification", ENS Rennes, May 2019. [30 participants]
- N. Crouseilles is co-organizer of the weekly seminar "Mathematic and applications" at ENS Rennes.
- P. Chartier and M. Lemou co-organized (with M. Thalhammer, university of Innsbruck) the mini-symposium "Advanced numerical methods for differential equations" in the ICIAM 2019 conference, Valencia, Spain, July 2019.
- F. Méhats co-organized (with W. Bao, National University of Singapore) the mini-symposium "Multiscale methods and analysis for oscillatory PDEs" in the Scicade conference, Innsbruck, Austria, July 2019.

9.1.1.2. Member of the Conference Program Committees

- N. Crouseilles was member of the scientific committee of the SMAI-19 Conference, June 2019.
- E. Faou was member of the scientific committee of the Scicade Conference, July 2019.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- P. Chartier is member of the editorial board of "Mathematical Modelling and Numerical Analysis" (M2AN).
- A. Debussche is editor in chief of Stochastic Partial Differential Equations: analysis and computations (2013-).
- A. Debussche is member of the editorial board of the collection "Mathématiques & Applications".
- A. Debussche is associate editor of Differential and Integral Equations (2002-19).
- A. Debussche is associate editor of Potential Analysis (2011-2019).
- A. Debussche is associate editor of Journal of Evolution Equation (2014-).
- A. Debussche is associate editor of Applied Mathematics & Optimization, SIAM JUQ (2016-2019).
- M. Lemou is member of the editorial committee of "Communications in Mathematical Sciences" (CMS).

9.1.2.2. Reviewer - Reviewing Activities

The members of the MINGuS team are reviewers for almost all the journals in which they publish (SIAM, JCP, CPDE, CMP, ARMA, JSP, JSC, JMAA, ANM, JCAM, NMPDE, Numer. Math., ⋯).

9.1.3. Invited Talks

- J. Bernier gave a talk in the seminar of Columbia university, New York, USA, June 2019.

- P. Chartier gave a talk in the workshop *Nonlinear Evolution Equations: Analysis and Numerics*, organized by M. Hochbruck, H. Koch, S.-J. Oh, and A. Ostermann, Oberwolfach, Germany, February 2019.

- P. Chartier gave a talk in the workshop HaLu, Gran Sasso Science Institute (GSSI) School of Advanced Studies, L'Aquila, Italy, June 2019.

- P. Chartier gave a talk in the ICIAM conference, Valencia, Spain, July 2019.

- P. Chartier gave a talk in the Scicade conference, University of Innsbruck, Austria, July 2019.

- N. Crouseilles gave a talk at the workshop *Quantum and Kinetic Transport*, Shanghai, China, April 2019.

- N. Crouseilles gave a talk in the workshop *Numerical Methods for Multiscale Models arising in Physics and Biology*, University of Nantes, France, June 2019.

- N. Crouseilles gave a talk in the Scicade conference, University of Innsbruck, Austria, July 2019.

- A. Debussche gave a talk in the conference *Partial Differential Equations: from theory to applications*, Nancy, France, March 2019.

- A. Debussche gave a talk in the workshop *Numerical Methods for SPDE: 20 Successful Years and Future Challenges*, Reims, France, June 2019.

- A. Debussche gave a mini-course in the workshop *PROPAL : propagation d'ondes en milieux aléatoires*, Mittag-Leffler Institute, Stockholm, Sweden, May 2019

- A. Debussche gave a talk in the workshop *Recents Trends in Stochastic Analysis and SPDEs*, University of Pisa, Italy, July 2019.

- A. Debussche gave a talk in the workshop *Touch down of Stochastic Analysis*, University of Bielefeld, Germany, September 2019.

- A. Debussche gave a talk in the conference *Challenges and New Perspectives in Mathematics*, Hassan II Academy of Sciences and Technology, Morocco, November 2019.

- A. Debussche gave a talk in the conference *Paths between probability, PDEs and physics*, Imperial College, July 2019.

- E. Faou gave a talk in the workshop *The future of structure-preserving algorithms*, ICMS, Edinburgh, UK, October 2019.

- E. Faou gave a talk in the Analysis seminar, CMS University of Cambridge, UK, October 2019.

- E. Faou gave a talk in the *Plasma day* session, at the Isaac Newton Institute, Cambridge, UK, October 2019.

- E. Faou gave a Colloquium talk at the University of Bielefeld, Germany, April 2019.

- E. Faou gave a talk in the workshop *Dynamics of nonlinear dispersive PDEs*, La Thuile, Italy, February 2019.

- E. Faou gave a talk in the workshop *Nonlinear Evolution Equations: Analysis and Numerics*, organized by M. Hochbruck, H. Koch, S.-J. Oh, and A. Ostermann, Oberwolfach, Germany, February 2019.

- Y. Li gave a talk in the Scicade conference, University of Innsbruck, July 2019.

- Y. Li gave a talk in the NumKin conference, Max Planck Institute, Garching, October 2019.

- M. Lemou gave a talk at the Albert Einstein Institute, Golm, Germany, February 2019.

- M. Lemou gave a talk at the workshop *Quantum and Kinetic Transport*, Shanghai, China, April 2019.

- M. Lemou gave a talk at the university of Cardiff seminar, Cardiff, UK, May 2019.

- M. Lemou gave a talk in the ICIAM conference, Valencia, Spain, July 2019.
- M. Lemou gave a talk in the Scicade conference, Innsbruck, Austria, July 2019.
- M. Lemou gave a talk at the university of Wisconsin seminar, Madison, USA, September 2019.
- M. Lemou gave a talk at the Georgia Tech seminar, Atlanta, USA, September 2019.
- M. Lemou gave a talk in the workshop *Recent Progress and Challenge in Quantum and Kinetic Problems*, Singapore, October 2019.
- J. Massot gave a talk in the NumKin conference, Max Planck Institute, Garching, October 2019.
- F. Méhats gave a talk in the workshop *Recent Progress and Challenge in Quantum and Kinetic Problems*, Singapore, October 2019.
- F. Méhats gave a talk in the NumKin conference, Max Planck Institute, Garching, October 2019.
- P. Navaro participated at the conference JuliaCon 2019, Baltimore, USA, August 2019.
- A. Rosello gave a talk in the conference *Paths between probability, PDEs and physics*, Imperial College, July 2019.

9.1.4. Scientific Expertise

- N. Crouseilles was member of the committee of the Blaise Pascal prize (GAMNI-SMAI), 2019.
- N. Crouseilles was member of the committee of the best PhD talk in the Scicade conference, 2019.
- N. Crouseilles was member of the committee of the expert reviewers for the European Doctoral programme of the University of Innsbruck.
- A. Debussche was reviewer for ERC projects.
- E. Faou was member of the committee of the PhD prize SMAI-GAMNI, 2019. 2019).

9.1.5. Research Administration

- F. Castella is member of the UFR mathématiques council, University Rennes 1.
- N. Crouseilles is responsible of Fédération Recherche Fusion for the University of Rennes I.
- N. Crouseilles is member of the IRMAR laboratory council, University Rennes 1.
- N. Crouseilles is member of the scientific council of ENS Rennes (until september 2019).
- A. Debussche is member of the scientific council of the Fédération Denis Poisson.
- A. Debussche is member of the administrative council of ENS Paris-Saclay.
- A. Debussche is scientific vice-deputy and international relations of ENS Rennes.
- A. Debussche is co-director of the Henri Lebesgue Center (Excellence laboratory of the program investissement d'avenir).
- A. Debussche is vice-head of the Lebesgue agency for Mathematic and Innovation.
- E. Faou is co-director of the Henri Lebesgue Center (Excellence laboratory of the program investissement d'avenir).
- E. Faou is member of the Scientific Council of the Pôle Universitaire Léonard de Vinci.
- M. Lemou is the head of the IRMAR team "Analyse numérique" composed of 48 members.
- M. Lemou is member of the scientific council of ENS Rennes.
- M. Lemou is member of the scientific council of the Henri Lebesgue Center.
- P. Navaro is member of the national network "calcul" http://calcul.math.cnrs.fr. This network is well known for interdisciplinarity of CNRS dedicated to technological aspects of scientific computing (programming, optimization, architectures, ⋯).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master :

- F. Castella, Numerical methods for ODEs and PDEs, 60 hours, Master 1, University of Rennes.
- N. Crouseilles, Numerical methods for PDEs, 24 hours, Master 1, ENS Rennes.
- E. Faou, Normal forms, 24 hours, Master 2, University of Rennes.
- M. Lemou, Numerical methods for kinetic equations, 18 hours, Master 2, University of Rennes.
- M. Lemou, elliptic PDEs, 36 hours, Master 1, University of Rennes.
- P. Navaro, Python courses, Master 2 Smart Data, ENSAI.
- P. Navaro, Scientific computing tools for big data, Master 2, University of Rennes.

9.2.2. Supervision

PhD : G. Barrué, Approximation diffusion pour des équations dispersives, University of Rennes I, started in september 2019, A. Debussche.

PhD : J. Bernier, Study of some perturbation of equations which involve symmetries: resonancy and stability, University of Rennes I, defended in july 2019, E. Faou and N. Crouseilles.

PhD : Q. Chauleur, Equation de Vlasov singulière et équations reliées, University of Rennes I, started in september 2019, R. Carles (CNRS, Rennes) and E. Faou.

PhD: Y. Li (Chinese Academy of Sciences), Structure preserving methods for Vlasov equations, march 2019-february 2020, Y. Sun (Chinese Academy of Sciences) and N. Crouseilles.

PhD in progress : J. Massot, Exponential methods for hybrid kinetic models, started in october 2018, N. Crouseilles.

PhD in progress : A. Rosello, Approximation-diffusion pour des équations cinétiques pour les modèles de type spray, started in september 2016, A. Debussche and J. Vovelle (CNRS, Lyon).

PhD in progress : L. Trémant, Asymptotic analysis methods and numerical of dissipative multi-scale models: ODE with central manifold and kinetic models, started in october 2018, P. Chartier and M. Lemou.

9.2.3. Juries

- F. Castella was referee for the PhD thesis of H. Moundoyi (Laboratoire de biologie marine de Roscoff, France), supervised by P. Cormier and B. Sarels.
- F. Castella was referee for the PhD thesis of F. Patout (ENS Lyon, France), supervised by V. Calvez and J. Garnier.
- N. Crouseilles was referee for the PhD thesis of B. Fedele (University Toulouse 3, France), supervised by C. Negulescu and M. Ottaviani (CEA).
- A. Debussche was referee for the PhD of E. Altmann (Sorbonne Université, France), supervised by L. Zambotti.
- A. Debussche was member of the defense committee of the PhD of B. Kouegou Kamen (Aix-Marseille Université, France), supervised by E. Pardoux.
- A. Debussche was referee for the PhD of T. Yeo (Aix-Marseille université, France) supervised by E. Pardoux.
- E. Faou was referee for the Habilitation degree of Karolina Kropielnicka (Univ. Gdansk, Poland).
- M. Lemou was referee of the PhD thesis of X. Li (University Paris-Dauphine, France), supervised by J. Dolbeault.
- F. Méhats was referee of the PhD thesis of T. Dolmaire (university Paris Diderot, France), supervised by L. Desvillettes and I. Gallagher.

9.3. Popularization

9.3.1. Internal or external Inria responsibilities

- F. Castella was member of the HCERES committee for the evaluation of the laboratory "Mathématiques et Informatique pour la Complexité et les Systèmes (MICS)", CentraleSupelec, Gif-sur-Yvette.
- P. Chartier was member of the hiring committee CR2-Inria (Bordeaux)
- P. Chartier was member of the hiring committee for the Inria promotion DR1-DR0.
- N. Crouseilles is member of the Inria Evaluation Committe (2019-2023).
- N. Crouseilles was member of the Inria hiring committee for the following Inria promotions: CRHC, DR2-DR1, DR1-DR0, DR0-DR02.
- N. Crouseilles is member of the hiring committee of the professor position, ENS Rennes.
- E. Faou was member of the CNU 26 until the summer 2019.
- E. Faou was member of the HCERES committee for the evaluation of the Mathematics Institute of Toulouse, University Paul Sabatier.
- E. Faou is AMIES correspondent (Agency for Interaction in Mathematics with Business and Society) for Inria Rennes Bretagne atlantique and IRMAR.

9.3.2. Interventions

- N. Crouseilles: participation to high school students internship at IRMAR laboratory (one week), June 2019.
- N. Crouseilles: interview by a first year student of University Rennes I (in order to inform the different ways to become Inria researcher).
- J. Massot: talk at the N. Mandela high school (terminal S classes) about the links between astronomy and mathematics, April 2019.
- J. Massot: participation to high school students internship at IRMAR laboratory (one week), June 2019.
- P. Navaro: participation to the Julia day, Lyon, France, January 2019.
- P. Navaro: participation to the Julia day, Nantes, France, June 2019.
- A. Rosello: participation to "MATHC2+", June 2019, ENS Rennes.
- L. Trémant: participation to "Maths en Jean", June 2019, University of Rennes.

9.3.3. Internal action

- J. Massot: writing of a Python library *ponio* (Python Objects for Numerical IntegratOr) https://pypi.org/project/ponio/0.1/
- P. Navaro: Python training at the IRMAR laboratory.
- P. Navaro: Julia training at the IRMAR laboratory.
- P. Navaro: R training at the Finist'R internal workshop, Roscoff, France, August 2019.
- P. Navaro, Python courses, within the exchange program between ENSAI and Hong Kong university.

Myriads Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Member of the Organizing Committees

- Guillaume Pierre is a member of the ACM/IFIP Middleware steering committee.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Guillaume Pierre is co-chair of the Intelligent Systems and Infrastructure track of the TheWebConf 2020 conference.
- Anne-Cécile Orgerie is co-chair of the Architecture and Networking track of the IEEE/ACM CCGrid 2019 conference.
- Anne-Cécile Orgerie is global co-chair of the Cluster and Cloud Computing track of the EuroPar 2019 conference.

9.1.2.2. Member of the Conference Program Committees

- Guillaume Pierre was a PC member of the TheWebConf 2019 conference.
- Guillaume Pierre was a PC member of the ACM/IEEE CCGRID 2019 conference.
- Guillaume Pierre was a PC member of the ACM/IFIP Middleware 2019 conference.
- Guillaume Pierre was a PC member of the Conpas 2019 conference.
- Guillaume Pierre was a PC member of the InterCloud-HPC 2019 workshop.
- Mozhdeh Farhadi was a PC member of the CIFS 2019 workshop.
- Anne-Cécile Orgerie was a PC member of the IEEE HiPC 2019 conference.
- Anne-Cécile Orgerie was a PC member of the ICA3PP 2019 conference.
- Anne-Cécile Orgerie was a PC member of the IEEE/ACM CCGrid 2019 conference.
- Anne-Cécile Orgerie was a PC member of the ICPP 2019 conference.
- Anne-Cécile Orgerie was a PC member of the AlgoTel 2019 conference.
- Anne-Cécile Orgerie was a PC member of the IEEE IC2E 2019 conference.
- Cédric Tedeschi was a PC member of the ICPP 2019 conference.
- Cédric Tedeschi was a PC member of the IEEE ICWS 2019 conference.
- Cédric Tedeschi was a PC member of the Conpas 2019 conference.
- Nikos Parlavantzas was a PC member of the UCC 2019 conference.
- Nikos Parlavantzas was a PC member of the CloudCom 2019 conference.
- Nikos Parlavantzas was a PC member of the ISPDC 2019 conference.
- Nikos Parlavantzas was a PC member of the CrossCloud 2019 workshop.
- Nikos Parlavantzas was a PC member of the VHPC 2019 workshop.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Anne-Cécile Orgerie is member of the editorial board of International Journal of Distributed Sensor Networks, SAGE Publishing.

9.1.3.2. Reviewer - Reviewing Activities

- Guillaume Pierre reviewed one article for the IEEE Networking Letters.
- Guillaume Pierre reviewed one article for the Software: Practice and Experience journal.
- Cédric Tedeschi reviewed one article for the TPDS journal.
- Nikos Parlavantzas reviewed one article for the Applied Computing and Informatics journal.
- Marin Bertier reviewed one article for the Journal of Supercomuting.
- Martin Quinson reviewed one article for the Journal of Computational Design and Engineering.

9.1.4. Invited Talks

- Guillaume Pierre gave a keynote speech at the IEEE CloudNet 2019 conference: "From Cloud to Fog: The Tao of IT Infrastructure Decentralization."
- Anne-Cécile Orgerie gave a seminar at LORIA lab in September 2019.
- Anne-Cécile Orgerie gave a seminar at the scientific council of INS2I in September 2019.
- Anne-Cécile Orgerie gave a talk at the Cloud Control Workshop in June 2019.
- Martin Quinson gave a talk at the "Algorithmes et programmation" workshop, at Centre International des Rencontres Mathématiques (CIRM) in May 2019.

9.1.5. Leadership within the Scientific Community

- Anne-Cécile Orgerie is vice-chair of ASF, the French Chapter of ACM SIGOPS.

9.1.6. Scientific Expertise

- Jean-Louis Pazat is the coordinator of experts in Information Technology for the evaluation of international bilateral collaborations at the ministry of research and education.

9.1.7. Research Administration

- Anne-Cécile Orgerie is an officer (chargée de mission) for the IRISA cross-cutting axis on Green IT.
- Martin Quinson is the leader of the "Large Scale Systems" department of IRISA.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Bachelor: Marin Bertier, Networks, Département Informatique L3, Insa Rennes.

Bachelor: Marin Bertier, Language C, Département Informatique L3, Insa Rennes.

Bachelor: Marin Bertier, Language C, Département Mathématique L3, Insa Rennes.

Bachelor: Jean-Louis Pazat, Introduction à la programmation, L1, Département STPI, INSA de Rennes.

Bachelor: Jean-Louis Pazat, Calcul Hautes Performances, Département Informatique L3, Insa Rennes.

Bachelor: Jean-Louis Pazat, Calcul Hautes Performances, Département Mathematiques L3, Insa Rennes.

Bachelor: Guillaume Pierre, Systèmes Informatiques, L3 MIAGE, Univ. Rennes 1.

Bachelor: Guillaume Pierre, Systèmes d'exploitation, L3 Informatique, Univ. Rennes 1.

Bachelor: Martin Quinson, Architecture et Systèmes, 60 hETD, L3 Informatique, ENS Rennes.

Bachelor: Martin Quinson, Pedagogy, 15 hETD, L3 Informatique, ENS Rennes.

Master: Marin Bertier, Operating Systems, Département Informatique M1, INSA de Rennes

Master: Marin Bertier, Distributed systems, Département Informatique M2, INSA de Rennes

Master: Anne-Cécile Orgerie, Cloud & Big Data, 30 hETD, M1, ENS Rennes.

Master: Anne-Cécile Orgerie, Green ICT, 4.5 hETD, M2, Telecom SudParis Evry.

Master: Anne-Cécile Orgerie, Green ICT,3 hETD, M2, ENSSAT Lannion.

Master: Anne-Cécile Orgerie, Green IT, 6 hETD, M1, INSA Rennes.

Master: Nikos Parlavantzas, Clouds, M1, INSA Rennes.

Master: Nikos Parlavantzas, Performance Evaluation, M1, INSA Rennes.

Master: Nikos Parlavantzas, Project in Large-Scale Systems, M2, INSA Rennes.

Master: Nikos Parlavantzas, Big Data and Applications, M1, INSA Rennes.

Master: Jean-Louis Pazat, Parallel Computing, M1 Département Informatique Insa Rennes.

Master: Jean-Louis Pazat, Internet Of Things, M1 & M2 Département Informatique Insa Rennes.

Master: Guillaume Pierre, Distributed Systems, M1, Univ. Rennes 1.

Master: Guillaume Pierre, Service technology, M1, Univ. Rennes 1.

Master: Guillaume Pierre, Techniques de développement pour le cloud, M2, Univ. Rennes 1.

Master: Guillaume Pierre, Advanced Cloud Infrastructures, M2, Univ. Rennes 1.

Master: Martin Quinson, Préparation à l'Agrégation de Science Industrielle (Programming and Software Engineering, 20h ETD; Operating Systems and C programming, 20 hETD; Networking, 20h ETD), ENS Rennes.

Master: Martin Quinson, Scientific Outreach, M2, 30 hEDT, ENS Rennes.

Master: Cédric Tedeschi, Concurrency in Systems and Networks, M1, Univ. Rennes 1.

Master: Cédric Tedeschi, Service Technology, M1, Univ. Rennes 1.

Master: Cédric Tedeschi, Parallel Programming, M1, Univ. Rennes 1.

Master: Cédric Tedeschi, Systems, L3, Univ. Rennes 1.

9.2.2. Supervision

Defended PhD: Genc Tato, "Locality-aware Lazy Overlay Networks for WANs," defended on December 19th 2019, supervised by Marin Bertier, Cédric Tedeschi.

Defended PhD: The Anh Pham, "Dynamic Formal Verification of High Performance Runtimes and Applications," defended on December 6th 2019, supervised by Martin Quinson, Thierry Jéron.

Defended PhD: Amir Teshome Wonjiga, "User-Centric Security Monitoring in Cloud Environments", defended on June 3rd 2019, supervised by Louis Rilling and Christine Morin.

PhD in progress: Adrien Gougeon, "Designing an energy-efficient communication network for the dynamic and distributed control of the electrical grid", started in September 2019, supervised by Anne-Cécile Orgerie and Martin Quinson.

PhD in progress: Paulo Rodrigues De Souza Junior, "fog computing service roaming techniques", started in December 2018, supervised by Guillaume Pierre and Daniele Miorandi (U-Hopper srl, Italy).

PhD in progress: Davaadorj Battulga, "Scalable data pipelines for fog computing applications", started in September 2018, supervised by Cédric Tedeschi and Daniele Miorandi (U-Hopper srl, Italy).

PhD in progress: Mulugeta Tamiru, "Automatic optimization of autonomous management systems", started in September 2018, supervised by Guillaume Pierre and Erik Elmroth (Elastisys AB, Sweden).

PhD in progress: Mozhdeh Farhadi, "Fog computing-enabled IoT situation-aware services", started in June 2018, supervised by Guillaume Pierre and Daniele Miorandi (U-Hopper srl, Italy).

PhD in progress: Hamidreza Arkian, "Stream processing operator placement", started in June 2018, supervised by Guillaume Pierre and Erik Elmroth (Elastisys AB, Sweden).

PhD in progress: Mehdi Belkhiria, "Dynamic Stream Processing for Maritime Traffic Surveillance," started in December 2017, supervised by Cédric Tedeschi.

PhD in progress (*co-tutelle*): Yasmina Bouizem, "Energy-efficient, fault-tolerance mechanisms for containerized cloud applications," started in December 2017, supervised by Didi Fedoua (Tlemcen University, Algeria), Djawida Dib (Tlemcen University, Algeria), Christine Morin and Nikos Parlavantzas.

PhD in progress: Ali Jawad Fahs, "Decentralized Fog Computing Infrastructure Control", started in October 2017, supervised by Guillaume Pierre.

PhD in progress: Clément El Baz, "Reactive security monitoring in clouds," started in October 2017, supervised by Louis Rilling and Christine Morin.

PhD in progress: Loic Guegan, "Simulating Internet of Things", started in October 2017, supervised by Martin Quinson and Anne-Cécile Orgerie.

PhD in progress: Dorra Boughzala, "Simulating Energy Consumption of Continuum Computing between Heterogeneous Numerical Infrastructures in HPC", started in December 2017, supervised by Laurent Lefèvre (Avalon team in Lyon), Anne-Cécile Orgerie and Martin Quinson.

PhD in progress: Arif Ahmed, "Scalable Decentralized Edge Cloud Infrastructures", started in October 2016, supervised by Guillaume Pierre.

PhD in progress: Baptiste Goupille-Lescar, "Designing agile, distributed cyber-physical systems with advanced collaboration capabilities", started in January 2016, supervised by Eric Lenormand (Thales), Christine Morin, Nikos Parlavantzas.

PhD in progress: Bruno Stevant, "Resource allocation strategies for service distribution at the Internet edge to optimize end-to-end latency," started in December 2014 (part-time), supervised by Jean-Louis Pazat.

9.2.3. *Juries*

- Guillaume Pierre chaired the PhD committee of Alexandre Veith, ENS Lyon, September 23rd 2019.
- Guillaume Pierre chaired the PhD committee of Jad Darrous, ENS Lyon, December 17th 2019.
- Martin Quinson chaired the PhD committee of Pierre Huchant, Ecole Nationale Supérieure d'Électronique, Informatique, Télécommunications, Mathématique et Mécanique de Bordeaux (ENSEIRB-MATMECA), March 29th 2019.
- Anne-Cécile Orgerie is a member of the jury for *Agrégation externe de Sciences Industrielles de l'Ingénieur option ingénierie informatique*.
- Martin Quinson is a member of the jury for *Capes d'informatique*.
- Anne-Cécile Orgerie was a member of the PhD committee of Ayham Kassab, Université de Franche-Comté, November 14th 2019.
- Anne-Cécile Orgerie was a member of the PhD committee of Gustavo Rostirolla, Université Toulouse 3, November 25th 2019.
- Louis Rilling was a member of the PhD committee of Guillaume Averlant, INSA Toulouse, October 2nd 2019.
- Louis Rilling was a guest of the PhD committee of Mohammad Mahdi Bazm, Université de Nantes, July 8th 2019.

9.3. Popularization

9.3.1. *Internal or external Inria responsibilities*

- Martin Quinson is on the scientific board of the Blaise Pascal foundation, boosting the scientific outreach in the domains of Maths and Computer Science.

9.3.2. Education

- Guillaume Pierre shared his experience as the coordinator of a H2020 Maria Skłodowska Curie Action project with CCRRDT, the Brittany Region's consultative committee for research and technological development. January 14th 2019.

- "L codent L créent" is an outreach program to send PhD students to teach Python to middle school students in 8 sessions of 45 minutes. Tassadit Bouadi (Lacodam), Camille Maumet (Empenn) and Anne-Cécile Orgerie (Myriads) are coordinating the local version of this program, initiated in Lille. The first session in Rennes occured in April 2019, and a new session has started for 2019-2020. The program is currently supported by: Fondation Blaise Pascal, ED MathSTIC, Université Rennes 1 and Fondation Rennes 1.

- "J'peux pas, j'ai informatique" is an outreach program to deconstruct IT stereotypes. Organized over one day, this program welcomes 110 college students (5ème) each year and is coordinated by Anne-Cécile Orgerie. The next event is planned in April 2020.

- Martin Quinson participated to the DIU EIL (Enseigner l'Informatique au Lycée), training existing maths and enginering teachers so that they can teach Informatics in their colleges.

- Martin Quinson is in charge of a M2 lecture on scientific vulgarization at ENS Rennes. The students are asked to come up with new activities (or improve existing ones) on their research field.

- Martin Quinson gave a doctoral teaching on December 13 on scientific outreach targeting either schools or science forums at IRISA laboratory.

9.3.3. Internal action

- Anne-Cécile Orgerie, Martin Quinson and Matthieu Simonin: organize experimenter meetings for the large-scale systems department of IRISA: https://xug.gitlabpages.inria.fr/meetings/

9.3.4. Creation of media or tools for science outreach

- Martin Quinson is working on a set of new outreach activities with his Master 2 class at ENS Rennes since several years. The most promising activities are then tested on field in schools during another lecture at ENS Rennes, at Licence 3 level. All available resources are freely available at https://github.com/InfoSansOrdi/pedago-rennes/.

<p align="center" style="color:red">PACAP Project-Team</p>

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Selection

10.1.1.1. Member of the Conference Program Committees

- Caroline Collange is a member of the program committee of the DATE 2020 conference
- Pierre Michaud was a member of the program committee of the International Conference on Computer Design (ICCD 2019)
- Pierre Michaud was a member of the program committee of the Third Data Prefetching Championship (DPC3)
- Isabelle Puaut was a member of the program committee of the Euromicro Conference on Real Time Systems (ECRTS) 2019 and 2020, IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS) 2020, Real Time Systems Symposium (RTSS) in 2019.
- Isabelle Puaut was a member of the program committee of the "Real-Time and (Networked) Embedded Systems" track of IEEE ETFA 2019.
- Isabelle Puaut was a member of the program committee of the International Conference on Real-Time Networks and Systems (RTNS) 2019 and 2020.
- Isabelle Puaut was a member of the program committee of the 18th Workshop on Worst-Case Execution Time Analysis (WCET 2019).
- Erven Rohou and Caroline Collange were members of the program committee of the French *Conférence francophone en informatique autour des thématiques du parallélisme, de l'architecture et des systèmes* (Compas 2019).
- Erven Rohou was a member of the program committee of the Special Session on Compiler Architecture, Design and Optimization (CADO) of HPCS 2019.
- André Seznec was a member of program committee of ACM/IEEE Micro 2019 conference
- André Seznec is a member of program committee of ACM/IEEE ISCA 2020 conference
- André Seznec is a member of program committee of the IPDPS 2020 conference

10.1.1.2. Reviewer

Members of PACAP routinely review submissions to numerous international conferences and events.

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

- Isabelle Puaut is Associate Editor of IEEE Transactions on Computers (IEEE TC) and Springer International Journal of Time-Critical Computing Systems.
- André Seznec is a member of the editorial boards of ACM Transactions on Architecture and Compiler Optimization.

10.1.2.2. Reviewer - Reviewing Activities

Members of PACAP routinely review submissions to numerous international journals.

10.1.3. Invited Talks

Erven Rohou and Byron Hawkins gave invited talks at the 13th *rencontres de la communauté française de compilation*.

Erven Rohou gave an invited talk at the GDR SOC2 day in Nantes.

Erven Rohou gave a talk at the Compas 2019 conference.

André Seznec was an invited speaker at the RISC V workshop in Paris.

10.1.4. Leadership within the Scientific Community

Caroline Collange is a member of the steering committee of the *Conférence francophone en informatique autour des thématiques du parallélisme, de l'architecture et des systèmes* (Compas 2019).

Isabelle Puaut is member of the steering committee of RTNS (Real-Time Networks and Systems).

Isabelle Puaut is member of the steering committee of the Worst Case Execution Time (WCET) workshop, held in conjunction with the Euromicro Conference on Real Time Systems (ECRTS).

Isabelle Puaut is member of the steering committee of the Euromicro Conference on Real Time Systems (ECRTS).

10.1.5. Research Administration

Isabelle Puaut is member of the Research Council (*Commission Recherche*) of the Université de Rennes 1. She is member of the working group "Habilitation à Diriger des Recherches".

Isabelle Puaut is member of the board of directors (*Conseil d'Administration*) of ISTIC (computer science and electrical engineering departement of Université de Rennes 1).

Erven Rohou is "correspondant scientifique des relations internationales" for Inria Rennes Bretagne Atlantique. As such he is a member of the Inria COST GTRI (Groupe de Travail "Relations Internationales").

Erven Rohou is a member of the steering committee of the high security research laboratory (LHS).

Erven Rohou is a member of the "Comité de Centre" of the Inria Rennes Research Center.

André Seznec is an elected member of the Administration Council of Inria.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Licence: Nicolas Bellec, Système, 14 hours, L3, Université de Rennes 1, France
- License: Nicolas Bellec, Informatique, 14 hours, L1, Lycée Chateaubriand (Rennes), France
- Arthur Blanleuil, SYS1 (Systèmes mono-utilisateur), 18 hours, M1, Université Rennes 1, France
- Arthur Blanleuil, NOY (Systèmes d'exploitation – implémentation de noyaux de systèmes), 22 hours, M1, Université Rennes 1, France
- Arthur Blanleuil, SE (Système d'Exploitation), 24 hours, M1, Université Rennes 1, France
- Master: C. Collange, GPU programming, 20 hours, M1, Université de Rennes 1, France
- Licence: D. Hardy, Real-time systems, 68 hours, L3, Université de Rennes 1, France
- Master: D. Hardy, Operating systems, 59 hours, M1, Université de Rennes 1, France
- Master: Kévin Le Bon, Architecture à Objet Canonique, 20 hours, M2, Université de Rennes 1, France
- Licence: Kévin Le Bon, SI2, 40, L1, Université de Rennes 1, France
- Master: I. Puaut, Operating systems: concepts and system programming under Linux (SEL), 77 hours, M1, Université de Rennes 1, France
- Master: I. Puaut, Operating systems kernels (NOY), 54 hours, M1, Université de Rennes 1, France
- Master: I. Puaut, Real-time systems, 40 hours, M1, Université de Rennes 1, France
- Master: I. Puaut, Optimizing and Parallelizing Compilers (OPC), 9 hours, M2, Université de Rennes 1, France

- Master: I. Puaut, Writing of scientific publications, 9 hours, M2 and PhD students, Université de Rennes 1, France
- Master: A. Seznec, Advanced Design and Architectures, 12 hours, M2 SIF, Université de Rennes 1.

10.2.2. Supervision

PhD: Arif Ali Ana-Pparakkal, *Performance Centric Dynamic Function Level Binary Transformation* [15], Université de Rennes 1, 9 Dec 2019, advisor E. Rohou

PhD in progress : Nicolas Bellec, *Security in real-time embedded systems*, started Dec 2019, advisors I. Puaut (50 %), G. Hiet from CIDRE (25 %), F. Tronel from CIDRE (25 %)

PhD in progress: Arthur Blanleuil, *Thread convergence prediction for SIMT architectures*, Université de Rennes 1, started Oct 2018, advisor C. Collange and A. Seznec

PhD in progress: Niloofar Charmchi, *Hardware prefetching and related issue*, Université de Rennes 1, started Jan 2017, advisors A. Seznec and C. Collange

PhD in progress: Kleovoulos Kalaitzidis, *Ultrawide Issue Superscalar Processors*, Université de Rennes 1, started Dec 2016, advisor A. Seznec

PhD in progress : Kévin Le Bon, *Dynamic Binary Analysis and Optimization for Cyber-Security*, started Dec 2018, advisors E. Rohou (30 %), G. Hiet from CIDRE (35 %), F. Tronel from CIDRE (35 %)

PhD in progress: Daniel Rodrigues Carvalho, *Towards a compressed memory hierarchy*, Université de Rennes 1, started Oct 2017, advisor A. Seznec

PhD in progress : Bahram Yarahmadi, *Compiler Optimizations and Worst-Case Energy Consumption*, started Feb 2018, advisor E. Rohou

10.2.3. Juries

Isabelle Puaut was a member of the following PhD thesis and habilitation thesis committees:

- Muhammad Refaat Sedky Soliman (PhD thesis), *Automated Compilation Framework for Scratchpad-based Real-Time Systems*, University of Waterloo, Canada, Juin 2019 (reviewer)
- Amine Naji (PhD thesis), *Timing Analysis for Time-Predictable Architectures*, Sorbonne Université, June 2019 (reviewer)
- Luca Santinelli (habilitation), *Mixed Criticality Modeling and Analysis Paradigms for Real Time Embedded Systems*, Habilitation à diriger des recherches, Institut National Polytechnique de Toulouse, May 2019 (reviewer)
- Roberto Medina (PhD thesis), *Deployment of Mixed-Criticality and Data-Driven Systems on Multicore Architectures*, Université de Paris Saclay, January 2019

Isabelle Puaut was a member of the following hiring committees of assistant professors/professors:

- Professor, Université de Bretagne Occidentale, "methods and tools for the design of embedded systems, Systems on Chips, embedded systems and architectures"
- Professor, ENS Lyon
- Assistant professor, Université de Strasbourg, "performance, modeling and simulation"
- Assistant professor, ISAE-ENSMA Poitiers, "embedded real-time systems, data and model engineering"

Erven Rohou was a member of the following hiring committee (comités de sélection):

- Assistant professor position at Université de Grenoble on cloud and edge computing

Erven Rohou was a member of the following PhD thesis committees:

- Julien Proy, *Sécurisation systématique d'applications embarquées contre les attaques physiques*, June 2019 (reviewer).
- Nicolas Belleville, *Compilation pour l'application de contre-mesures contre les attaques par canal auxiliaire*, Université Grenoble Alpes, Nov 2019 (reviewer).
- Patryk Kiepas, *Performance analyses and code transformations for MATLAB applications*, Dec 2019 (reviewer).
- Paul Godard, *Parallélisation et passage à l'échelle durable d'une chaîne de traitement graphique pour l'impression professionnelle*, Université de Strasbourg, Dec 2019 (reviewer).

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

Caroline Collange is a member of the committee of the Gilles Kahn PhD prize of Société Informatique de France.

10.3.2. Articles and contents

- Erven Rohou gave an interview in the *Émergences* magazine on (volume 56, Mar 22nd 2019) on automatically masking sensitive information to protect against side-channel attacks.

10.3.3. Education

Nicolas Bellec and Isabelle Puaut taught *Basics of computer architecture*, a training of high school teachers as part of the opening of the new computer science option in the two final years before Baccalauréat, 10 hours.

Erven Rohou was invited to present the life of a researcher in computer science to middle school students (*Collège de Cesson-Sévigné*)

10.3.4. Interventions

Erven Rohou was present at the International Cybersecurity Forum in Lille (FIC https://www.forum-fic.com/en/home.htm). He presented a demo on compiler-generated countermeasures against side-channel attacks, developed within the context of the CHIST-ERA SECODE project.

10.3.5. Internal action

Erven Rohou presented the activities of PACAP at the SecDays event organized at Inria Rennes and IRISA.

PANAMA Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

- Nancy Bertin, event coordinator of the 2019 Science and Music Day (Journée Science et Musique) organized by IRISA *(with Claire Cury from EMPENN project-team.)*
- Nancy Bertin, member of the LVA/ICA conference steering committee.

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Nancy Bertin, coordinator of the Science and Music Young Researcher Award (Prix Jeune Chercheur Science et Musique).
- Rémi Gribonval and Frédéric Bimbot, scientific coordinators of the Science and Music Day (Journée Science et Musique) organized by IRISA.

9.1.2.2. Member of Conference Program Committees

- Rémi Gribonval, member of the program committee of the GRETSI.

9.1.3. Membership of Editorial Boards

- Frédéric Bimbot, Editor-in-Chief of the international journal *Speech Communication*.
- Rémi Gribonval, Associate Editor of the international journal *Constructive Approximation*.
- Rémi Gribonval, Senior Area Editor of the *IEEE Transactions on Signal Processing*.
- Nancy Bertin, Guest Editor of a special issue in the international journal *IEEE Journal of Selected Topics in Signal Processing*.

9.1.4. Invited Talks

- Jérémy Cohen, invited speaker at workshop "Low Rank Optimization and Applications" (Max Plank Institute for the Mathematics in the Sciences, Leipzig, Germany, April 2019) [0]
- Jérémy Cohen, invited speaker at workshop "AI and Tensor Factorizations" (Santa Fe, USA, September 2019)
- Rémi Gribonval, keynote at SampTA 2019 (Sampling Theory and Applications) in Bordeaux, France.
- Rémi Gribonval, tutorial at Summer School "Sparsity for Physics, Signal and Learning", Inria Paris, June 2019
- Rémi Gribonval, invited talk at 4TU meeting on "Mathematics of Deep Learning", Delft University, Nov 2019
- Rémi Gribonval, invited talk at Alan Turing Institute on "Mathematics of Data", London, May 2019
- Rémi Gribonval, invited talk at GDR ISIS meeting on "Theory of Deep Learning", Paris, OCt 2019
- Rémi Gribonval, panel session on "Signal processing and AI" at GRETSI 2019, Lille, Aug 2019

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[0] https://www.mis.mpg.de/calendar/conferences/2019/lroa2019.html

9.1.5. Scientific Expertise

- Rémi Gribonval, vice-president of the Scientific Advisory Board of the Acoustics Research Institute from the Austrian Academy of Sciences in Vienna.
- Frédéric Bimbot, member of the International Advisory Council of ISCA (International Speech Communication Association).
- Frédéric Bimbot, member of the ANR Expert Scientific Committee n°38, dedicated to the Digital Revolution and its relations to Knowledge and Culture.
- Rémi Gribonval, member of the EURASIP Special Area Team (SAT) on Signal and Data Analytics for Machine Learning (SiG-DML) since 2015.

9.1.6. Research Administration

- Frédéric Bimbot, board member of the GDR MADICS
- Rémi Gribonval, member of the organization committee of the 2019 GDR ISIS / GRETSI / Club EAA thesis prize in signal and image processing.
- Nancy Bertin, elected member of the "Comité de Centre" at Inria Rennes Bretagne Atlantique research center.
- Nancy Bertin, coordinator of IRISA "Arts, Heritage and Culture crosscutting axis" *(with Valérie Gouranton, HYBRID project-team.)*

9.2. Teaching

Master : N. Bertin, coordination of the VAI module "Vocal and Acoustic Interactions" within the SIF M2, 20 hours, Université de Rennes 1, France

Master : N. Bertin, "Vocal and Audio Interactions", 4 hours, M2, Université Rennes 1, France.

Master : N. Bertin, "Fundamentals of Signal Processing", 24 hours, M1, Ecole Normale Supérieure (ENS) de Bretagne, Rennes, France.

Master : N. Bertin, "Foundations of Smart Sensing", 9 hours, M2, Ecole Nationale de la Statistique et de l'Analyse de l'Information (ENSAI), Rennes, France.

Master : N. Bertin, "Sparsity in Signal and Image Processing", 12 hours, M2, Institut National des Sciences Appliquées (INSA) de Rennes, France.

Master : R. Gribonval, "High dimensional statistical learning", 12 hours, M2, Université Rennes 1, France.

Master: R. Gribonval, coordination of the HDL module "High dimensional statistical learning" within the SIF M2, 20 hours, Université Rennes 1, France.

Master : R. Gribonval, "Sparsity in Signal and Image Processing", 8 hours, M2, Institut National des Sciences Appliquées (INSA) de Rennes, France.

Master : R. Gribonval, coordination of the module "Sparsity in Signal and Image Processing", 48 hours, M2, Institut National des Sciences Appliquées (INSA) de Rennes, France.

Master : J. Cohen, "Parcimony", 9 hours, ENSAI / "Smart Sensing" course

Master : J. Cohen, "Sparsity in Signal and Image Processing", 19 hours, M2, Institut National des Sciences Appliquées (INSA) de Rennes, France

9.3. Popularization

9.3.1. Journée Science et Musique (JSM 2019)

Participants: Nancy Bertin, Rémi Gribonval, Nancy Bertin, Frédéric Bimbot, Ewen Camberlein, Stéphanie Gosselin-Lemaile, Corentin Louboutin, Antoine Chatalic, Clément Gaultier, Cássio Fraga Dantas, Diego Di Carlo.

with contributions and support from: Claire Cury, Elisabeth Lebret, Valérie Gouranton, Ronan Gaugne, Florian Nouviale, Evelyne Orain, Agnès Cottais, Catherine Jacques-Orban and many more.

PANAMA coordinated the organization of a public event called "Journée Science et Musique" ("Music and Science Day"). This yearly event organized by the METISS/ PANAMA Team since 2011 aims at sharing with the wide audience the latest innovations and research projects in music. The motivation for hosting this event is to explain and promote the technology behind audio-processing that people face in their daily lives. The event is free to everyone and people have the possibility to attend talks by selected speakers or meet numerous experts that demonstrate current projects in which people can interactively participate. Edition 2019 hosted approximately 300 visitors and was a partner of the "Festival des Sciences" and an official event of CNRS 80th birthday celebrations.

9.3.2. Participation to Equinoxes#1

Frédéric Bimbot gave a popularization conference at the **Equinoxes#1** event, organised by Artoutaï (13 October 2019), on "the mysterious spectrum of sound" (4 times during the day)

9.3.3. Internal or external responsibilities

Frédéric Bimbot is a member of a working group of the CNRS/DR17 on the topic "changer le regard sur le handicap au travail"

RAINBOW Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Organisation

9.1.1.1. General Chair, Scientific Chair

- Marie Babel was the Scientific Chair and the General co-chair of the workshop "Robotique de la marche" organized in Inria Rennes on December 13th 2019.

9.1.1.2. Member of the Organizing Committees

- P. Robuffo Giordano co-organized with F. Schiano and D. Floreano (EPFL) the Workshop on "Aerial Swarms" at the 2019 International Conference on Intelligent Systems and Robots, Macau, China

9.1.2. Scientific Events: Selection

9.1.2.1. Chair of Conference Program Committees

- Paolo Robuffo Giordano: Program Co-Chair of MRS 2019
- François Chaumette: Program Co-Chair of ICRA 2020 to be held in Paris in June 2020.

9.1.2.2. Member of the Conference Program Committees

- Claudio Pacchierotti: Eurohaptics (Associate Editor), World Haptics (Associate Editor), ICRA 2020 (Associate Editor), Demonstrations Co-Chair, IEEE Haptics Symposium (HAPTICS) 2020
- Paolo Robuffo Giordano: ICRA 2020 (Associate Editor), RSS 2019 (Area Chair)
- Eric Marchand: ICRA 2020 (Associate Editor)
- Julien Pettré: IEEE Virtual Reality 2019, ACM Motion and Interactions in Games 2019, ACM Symposium on Computer Animation

9.1.2.3. Reviewer

- Alexandre Krupa: IROS 2019 (1), ICRA 2020 (1)
- Eric Marchand: IROS 2019 (1), ICRA 2019 (2), ICRA 2020 (1)
- Marie Babel: ICRA 2020 (4), SMC 2019 (1)
- Paolo Robuffo Giordano: ICRA 2020 (2)
- François Chaumette: ICRA 2020 (1), CDC 2019 (1), RoMoCo 2019 (1)

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Paolo Robuffo Giordano is Editor for the IEEE Transactions on Robotics since January 2019
- Alexandre Krupa was Associate Editor of IEEE Robotics and Automation Letters (RA-L) (until June 2019) and is currently Associate Editor for the IEEE Transactions on Robotics (since July 2019)
- Eric Marchand is a Senior Editor of IEEE Robotics and Automation Letters (RA-L) and an Editor for Interstices)i(
- François Chaumette: Editor of the IEEE Transactions on Robotics, Editorial Board of the Int. Journal of Robotics Research, Editorial Board of the Springer Tracts in Advanced Robotics, Board Member of the Springer Encyclopedia of Robotics.
- Julien Pettré is Associate Editor for the Wiley's Computer Graphics Forum, and Associate Editor for the Wiley's Computer Animation and Virtual Worlds

9.1.3.2. Reviewer - Reviewing Activities

- Vincent Drevelle: ActaCybernetica
- Eric Marchand: IEEE RA-L (2)
- Marie Babel: IEEE RA-L (1)
- Paolo Robuffo Giordano: IJRR (1), IEEE RA-L (1), IEEE T-CST (2), IEEE T-RO (2)
- François Chaumette: IEEE Trans. on Industrial Electronics (2), IEEE RA-L (1), Acta Astronautica (1)
- Claudio Pacchierotti: RAL (1), IJHCS (5), TOH (7), JMRR (1), ICRA (4), TIE (2), TVCG (1), Frontiers in Robotics and AI (2), THMS (1), Presence (1), Scientific Reports (1)

9.1.4. Invited Talks

- Paolo Robuffo Giordano:
    - "Human-assisted Robotics", Robotics and Mechatronics lab, University of Twente, Netherlands, October 2019
    - "Collective Control, State Estimation and Human Interaction for Quadrotors in Unstructured Environments", Technoférence, Images et Réseaux, Rennes, October 2019
    - "Human-assisted Robotics", Robotics Research Jam Session, Univ. of Pisa, Italy, April 2019
- Claudio Pacchierotti:
    - with A. M. Okamura, "Learnings from cross-functional work on skin stretch haptics." Workshop "Cross-functional collaboration between engineering & perception researchers" at WHC Conference, Tokyo, Japan, 2019.
    - "Cutaneous haptic technologies for robotics and immersive environments." Cirrus Logic, Edinburgh, United Kingdom, 2019.
    - "Virtual Reality and Robotics for Industry 4.0." University of Aarhus, Herning, Denmark, 2019.
- Marie Babel:
    - "Simulation virtuelle et retour haptique du mouvement : une expérience de conduite réaliste immersive", Séminaire d'hiver de l'IFRATH, Paris, January 2019
    - "Fauteuil roulant intelligent : croiser les regards (académiques et cliniques)", Technoférence, Images et Reseaux, January 2019
- François Chaumette:
    - Plenary talk on "Geometric and end-to-end robot vision-based control" at 12th Int. Workshop on Robot Motion and Control (RoMoCo 2019), Poznan, Poland, July 2019 [33].
    - "Sensor-based Control", GdR Robotics Winter School : Robotics Principia, Sophia-Antipolis, January 2019.
- Fabien Spindler:
    - "Avancées en vision pour la saisie et la manipulation", Journée GT3 du GDR robotique, ISIR, Paris, Juin 2019

9.1.5. Leadership within the Scientific Community

- Claudio Pacchierotti is the Chair of the IEEE Technical Committee on Haptics and the Secretary of the Eurohaptics Society.
- François Chaumette is a member of the Scientific Council of RTE Vedecom, ImVIA lab in Dijon and Le Creusot, and a founding member of the Scientific Council of the "GdR Robotique".

9.1.6. Scientific Expertise

- Paolo Robuffo Giordano was reviewer for evaluating proposals of the ANR (French National Research Agency), Mitacs (Canada), SNSF (Swiss National Science Foundation), MIUR (Italian National Research Agency), and the EU commission (ERC Consolidator Grants)

- Claudio Pacchierotti was reviewer for evaluating proposals of the European Science Foundation (ESF).

- Fabien Spindler was a member of the HCERES evaluation committee of URIA, the laboratory of the Ecole des Mines de Douai, the DTIS laboratory of Onera and the LISTIC in Annecy.

- Marie Babel serves as an expert for the International Mission of the French Research Ministry (MEIRIES) - Campus France (about 30 expertises per year). She was also reviewer for evaluating proposals of the ANR (French National Research Agency)

- François Chaumette served for the fourth (and last) time as Panel Member of the PE7 ERC Consolidator Grants. He also served as member of IEEE RAS Pioneer Award Evaluation Panel and IEEE RAS Awards Evaluation Panel. He was a panel member of the 2019 ICREA Academia program (similar to IUF for Catalonia). Finally, he served in the jury for the Inria research positions (CR2) available for the Inria Rennes-Bretagne Atlantique centre.

9.1.7. Research Administration

- Alexandre Krupa is a member of the CUMIR ("Commission des Utilisateurs des Moyens Informatiques pour la Recherche") of Inria Rennes-Bretagne Atlantique, he also serves as Inria representative (correspondent) at the IRT Jules Verne.

- Eric Marchand served as secretary in the board of the "Association Française pour la Reconnaissance et l'interprétation des Formes" (AFRIF). He is the head of "Digital Signals and Images, Robotics" department at IRISA.

- François Chaumette serves as the president of the committee in charge of all the temporary recruitments ("Commission Personnel") at Inria Rennes-Bretagne Atlantique and IRISA. He is also a member of the Head team of Inria Rennes-Bretagne Atlantique, and of the Scientific Steering Committee (COSS) of IRISA. Since December 2019, he is a member of the Inria COERLE committee (in charge of the ethical aspects of all Inria research).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Marie Babel:

        Master INSA2: "Robotics", 26 hours, M1, INSA Rennes

        Master INSA1: "Concepts de la logique à la programmation", 20 hours, L3, INSA Rennes

        Master INSA1: "Langage C", 12 hours, L3, INSA Rennes

        Master INSA2: "Computer science project", 30 hours, M1, INSA Rennes

        Master INSA1: "Practical studies", 16 hours, L3, INSA Rennes

        Master INSA2: "Image analysis", 26 hours, M1, INSA Rennes

        Master INSA1: "Remedial math courses", 50 hours, L3, INSA Rennes

François Chaumette:

        Master SISEA: "Robot Vision", 12 hours, M2, Université de Rennes 1

        Master ENS: "Visual servoing", 6 hours, M1, Ecole Nationale Supérieure de Rennes

        Master ESIR3: "Visual servoing", 8 hours, M2, Ecole supérieure d'ingénieurs de Rennes

Vincent Drevelle:

> Master ILA: "Terrain information systems", 30 hours, M2, Université de Rennes 1
>
> Master Info: "Artificial intelligence", 20 hours, M1, Université de Rennes 1
>
> Licence Info: "Computer systems architecture", 42 hours, L1, Université de Rennes 1
>
> Master Elec: "Electronics project", 16 hours, M1, Université de Rennes 1
>
> Portail Info-Elec: "Discovering programming and electronics", 22 hours, L1, Université de Rennes 1
>
> Licence Miage: "Computer programming", 78 hours, L3, Université de Rennes 1
>
> Master Elec: "Instrumentation, localization, GPS", 4 hours, M2, Université de Rennes 1
>
> Master Elec: "Multisensor data fusion", 20 hours, M2, Université de Rennes 1
>
> Master IL: "Mobile robotics", 32 hours, M2, Université de Rennes 1

Alexandre Krupa:

> Master FIP TIC-Santé: "Ultrasound visual servoing", 6 hours, M2, Télécom Physique Strasbourg
>
> Master ESIR3: "Ultrasound visual servoing", 9 hours, M2, Esir Rennes

Eric Marchand:

> Master Esir2: "Colorimetry", 24 hours, M1, Esir Rennes
>
> Master Esir2: "Computer vision: geometry", 24 hours, M1, Esir Rennes
>
> Master Esir3: "Special effects", 24 hours, M2, Esir Rennes
>
> Master Esir3: "Computer vision: tracking and recognition", 24 hours, M2, Esir Rennes
>
> Master MRI: "Computer vision", 24 hours, M2, Université de Rennes 1
>
> Master ENS: "Computer vision", 16 hours, M2, ENS Rennes
>
> Master MIA: "Augmented reality", 4 hours, M2, Université de Rennes 1

Julien Pettré:

> Master SIF: "Motion for Animation and Robotics", 6 hours, Unviersité de Rennes 1
>
> Master Artificial Intelligence and Advanced Visual Computing: "Advanced 3D graphics", 3 hours, Ecole Polytechnique

9.2.2. Supervision

- Ph.D. in progress: Agniva Sengupta, "Visual tracking of deformable objects with RGB-D camera", started in January 2017, supervised by Alexandre Krupa and Eric Marchand
- Ph.D. in progress: Xavier De Tinguy de la Girouliére, "Conception de techniques d'interaction multisensorielles pour la manipulation dextre d'objets en réalité virtuelle", started in September 2017, supervised by Maud Marchal, Anatole Lécuyer (Hybrid group) and Claudio Pacchierotti
- Ph.D. in progress: Rahaf Rahal, "Mixed tactile-force feedback for safe and intuitive robotic teleoperation", started in October 2017, supervised by Paolo Robuffo Giordano and Claudio Pacchierotti
- Ph.D. in progress: Romain Lagneau (Hybrid group), "Control of soft object deformation by visual servoing", started in October 2017, supervised by Alexandre Krupa and Maud Marchal (Hybrid group)
- Ph.D. in progress: Florian Berton, "Gaze analysis for crowd behaviours study", started in October 2017, supervised by Anne-Hélène Olivier (MimeTIC group), Ludovic Hoyet (MimeTIC group) and Julien Pettré
- Ph.D. in progress: Zane Zake (IRT Jules Verne), "Visual servoing for cable-driven parallel robots", started in January 2018, supervised by Stéphane Caro (LS2N) and François Chaumette
- Ph.D. in progress: Javad Amirian, "Crowd motion prediction for robot navigation in dense crowds", started in January 2018, supervised by Jean-Bernard Hayet (CIMAT, Guana) and Julien Pettré

- Ph.D. in progress: Xi Wang "Robustness of Visual SLAM techniques to light changing conditions", started in September 2018, supervised by Eric Marchand and Marc Christie (MimeTIC group)

- Ph.D. in progress: Alexander Oliva, "Coupling Vision and Force for Robotic Manipulation", started in October 2018, supervised by François Chaumette and Paolo Robuffo Giordano

- Ph.D. in progress: Ketty Favre "Lidar-based localization", started in October 2018, supervised by Eric Marchand, Muriel Pressigout and Luce Morin (IMAGE group)

- Ph.D. in progress: Fabien Grzeskowiak, "Crowd simulation for testing robot navigation in dense crowds", started in October 2018, supervised by Marie Babel and Julien Pettré

- Ph.D. in progress: Guillaume Vailland, "Outdoor wheelchair assisted navigation: reality versus virtuality", started in November 2018, supervised by Marie Babel and Valérie Gouranton (Hybrid group)

- Ph.D. in progress: Benoît Antoniotti "Scene reconstruction and exploration", started in March 2019, supervised by Eric Marchand, François Chaumette, and Antoine Lehuger (Creative)

- Ph.D. in progress: Pascal Brault, "Planification et optimisation de trajectoires robustes aux incertitudes paramétriques pour des taches robotiques fondées sur l'usage de capteurs", started in September 2019, supervised by Paolo Robuffo Giordano and Quentin Delamare

- Ph.D. in progress: Alberto Jovane, "Modélisation de mouvements réactifs et comportements non verbaux pour la création d'acteurs digitaux pour la réalité virtuelle", started in September 2019, supervised by Marc Christie (MimeTIC group), Claudio Pacchierotti, Ludovic Hoyet (MimeTIC group) and Julien Pettré

- Ph.D. in progress: Samuel Felton "Deep Learning for visual servoing", started in October 2019, supervised by Eric Marchand and Elisa Fromont (Lacodam group)

- Ph.D. in progress: Mathieu Gonzalez "SLAM in time varying environment", started in October 2019, supervised by Eric Marchand and Jérome Royan (IRT B<>COM)

- Ph.D. in progress: Adèle Colas, "Modélisation de comportements collectifs réactifs et expressifs pour la réalité virtuelle", started in November 2019, supervised by Claudio Pacchierotti, Anne-Hélène Olivier, Ludovic Hoyet (MimeTIC group) and Julien Pettré

- Ph.D. defended: Salma Jiddi, "Photometric Registration of Indoor Real Scenes using an RGB-D Camera with Application to Mixed Reality", defended in January 2019, supervised by Eric Marchand [2]

- Ph.D. defended: Ide-Flore Kenmogne "Localisation ensembliste de drones à l'aide de méthodes par intervalles", defended in March 2019, supervised by Eric Marchand and Vincent Drevelle [3]

- Ph.D. defended: Quentin Delamare, "Algorithmes d'estimation et de commande pour des quadrirotors en interaction physique avec l'environnement", defended on December 2019, supervised by Paolo Robuffo Giordano and Antonio Franchi (LAAS) [1]

- Ph.D. defended: Axel Lopez Gandia, "Optical flow-based navigation algorithms for virtual humans", defended on December 2019, supervised by Julien Pettré and François Chaumette [4]

- Ph.D. to be defended: Hadrien Gurnel "Needle comanipulation with haptic guidance for percutaneous interventions", to be defended in January 2020, supervised by Alexandre Krupa, Maud Marchal (Hybrid group) and Laurent Launay (IRT B<>com)

9.2.3. Internships

- Alexandre Bonneau, ENS Rennes - Univ. Rennes 1, "Haptic rendering of virtual contacts in crowded environments", supervised by J. Pettré

- Pascal Brault, ENS Rennes - Univ. Rennes 1, "Planning of Minimally Sensitive Trajectories for Mobile Robots", supervised by Q. Delamare and P. Robuffo Giordano

- Valerio Paduani, Univ. of Rome "La Sapienza", Italy, "Perception-Aware Human-Assisted Navigation of Mobile Robots on Persistent Trajectories", supervised by M. Cognetti and P. Robuffo Giordano
- Giulia Matarese, Univ. of Pisa, Italy, "Caring about the human operator: haptic shared control for enhanced user comfort in robotic telemanipulation", supervised by C. Pacchierotti and P. Robuffo Giordano
- Riccardo Arciulo, Univ. of Rome "La Sapienza", Italy, "Novel Solution For Human-Robot physical interaction in collaborative tasks", supervised by C. Pacchierotti and P. Robuffo Giordano
- Ahmed Elsherif, École Centrale de Nantes (EMARO), "Shared control of drones with wearable haptic interfaces", supervised by C. Pacchierotti and M. Aggravi
- Daniel Lemos Estima, University of Twente, "Integration between a grounded haptic interface and a robot-assisted flexible needle insertion system", supervised by C. Pacchierotti
- David Steeven Villa Salazar, Univ. Federal do Rio Grande do Sul, "Development of Virtual Reality scenes rendered using ultrasound and vibrotactile haptic interfaces", supervised by C. Pacchierotti
- Samuel Felton, INSA Rennes - Univ. Rennes 1, "Deep Learning for Visual Servoing", supervised by E. Marchand
- Gatien Gaumerais, ESIR 2 - Univ. Rennes 1, "Visual-servoing with Parrot Bebop 2 drone", supervised by F. Spindler
- Quentin Zanini, ENS - Univ. Rennes 1, "Design of a library of 3D shapes for haptic rendering using the ultrahaptics device", supervised by C. Pacchierotti and M. Marchal (Hybrid group)

9.2.4. Juries

- Paolo Robuffo Giordano: Davide Bicego (Ph.D., member, LAAS, Toulouse)
- Julien Pettré: Jennifer Vandoni (Ph.D., member, Paris Saclay) and Maxime Garcia (Ph.D., reviewer, Grenoble Alpes)
- Eric Marchand: Maxime Rousselot (Ph.D. president, univ. de Rennes 1), Dmitry Kuzovkin (Ph.D. president, univ. de Rennes 1), Gilles Simon (HDR, reviewer, Univ. de Lorraine)
- Marie Babel: Lydia Habib (Ph.D., member, LAMIH, Université Polytechnique Hauts de France)
- François Chaumette: Eulalie Coevet (Ph.D., president, Inria Lille), Mateus Laranjeira (Ph.D., reviewer, Cosmer, Toulon), Brahim Tamadazte (HdR, reviewer, Femto, Besançon), Guillaume Caron (HdR, member, MIS, Amiens)

9.3. Popularization

- Due to the visibility of our experimental platforms, the team is often requested to present its research activities to students, researchers or industry. Our panel of demonstrations allows us to highlight recent results concerning the positioning of an ultrasound probe by visual servoing, vision-based shared control using our haptic device for object manipulation, the control of a fleet of quadrotors, vision-based detection and tracking for space navigation in a rendezvous context, the semi-autonomous navigation of a wheelchair, the power wheelchair simulator, and augmented reality applications. Some of these demonstrations are available as videos on VispTeam YouTube channel (https://www.youtube.com/user/VispTeam/videos).

9.3.1. Interventions

- François Pasteau participated to the Tech'in Vitré forum with an interview in March 2019.
- Solenne Fortun participated to the Societé de gérontologie de l'ouest et du centre (SGOC) congress with an interview in May 2019.
- Marie Babel animated an interactive session organized in Inria Rennes about "J'peux pas, j'ai informatique" on April 3rd, 2019 for secondary-school pupils.

SERPICO Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organization

10.1.1.1. General Chair, Scientific Chair

- Charles Kervrann was co-General Chair (with R. Ober, Texas A&M), and head of the organizing committee of the "Quantitative BioImaging" (QBI'2019) conference (350 attendees, Rennes, January 2019).
- Jean Salamero was the scientific responsible and co-organizer of the first joint "Workshop on BioImaging" between Paris Sciences Lettres (PSL-Institut Curie) University and Peking University (PKU) (MoU for official "collaboration and exchange program PSL Qlife/PKU in the Bioimaging field 2020-2024).

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- Charles Kervrann: member of the scientific committee of the international "Quantitative BioImaging" (QBI'2019, QBI'2020) conference, member of the scientific committee of the international NEU-BIAS 2020 conference, and member of the scientific committee of the JIONC workshop (GdR Ondes, since 2014).
- Patrick Bouthemy: Associate Editor for the ISBI'2019 conference.

10.1.2.2. Reviewer

- Charles Kervrann: reviewer for ISBI'2019.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Charles Kervrann is Associate Editor of the "IEEE Signal Processing Letters" journal.
- Patrick Bouthemy is co-editor in chief of the open access journal "Frontiers in Computer Science", section "Computer Vision and Image Analysis".

10.1.3.2. Reviewer - Reviewing Activities

- Charles Kervrann: Journal of Mathematical Imaging and Vision, IEEE Signal Processing Letters, Nature Communications, IEEE Transactions on Medical Imaging, OSA Biomedical Optics Express.
- Patrick Bouthemy: IEEE Signal Processing Letters.
- Jean Salamero: Nature Methods, Journal of Cell Sciences, Nature Communications, Biology of the Cell, ACS Photonics, Journal of Microscopy.

10.1.4. Invited Talks

Charles Kervrann:

- "Statistical methods for intracellular dynamics classification in live cell imaging", "Bioimage Processing" workshop, June, Cambridge, UK (see [29]).

- "Computational methods for intracellular dynamics in live cell imaging", "Random Walks and Intracellular Transport" workshop, Apr, Manchester, UK (see [28]).
- "A fast statistical colocalization method for 3D live cell imaging and super-resolution microscopy", "Statistical Modeling for Shapes and Imaging" workshop, March, Paris (see [27]).
- "Geolocalization and classification of macromolecules in cryo-electron microscopy with deep-learning", Journées Scientifiques de l'Université de Nantes: "la microscopie électronique pour les sciences du vivant", June, Nantes.
- "Computational methods for fluorescence microscopy", Institut Curie CNRS-UMR 168 Seminar, February, Paris.

Patrick Bouthemy:

- "Intensity-based methods for fully automated registration in 2D and 3D CLEM", COMULIS & BioImaging Austria/CMI conference, November, Vienna, Austria (see [26]).

Jean Salamero:

- "Live cell imaging in High Space-time Resolution" and BioImaging course (Co-Organizer), ReTUBI H2020) Super Resolution meeting and Imaging, October, Lisbon, Portugal.
- "Career Path for the Next Generation of BioImaging Scientist: Training Passport", Global BioImaging 2019 "EOE.V", September, Singapore.

Sylvain Prigent:

- "Portail analyse d'images France-BioImaging", 16èmes Assises Nationales des Plateformes du réseau RT-mfm, March, Rennes.
- "Portail analyse d'images France-BioImaging", 9èmes Journées Scientifiques et Techniques du Réseau des Microscopistes de l'INRA, November, Nantes.

10.1.5. Leadership within the Scientific Community

- Charles Kervrann is member of the executive board of the GdR MIV/ImaBio (2588 - Microscopie Fonctionnelle du Vivant) CNRS and member of the scientific committee of the Interdisciplinary MiFoBio School CNRS (http://www.mifobio.fr).
- Patrick Bouthemy is member of the board of AFRIF (Association Française pour la Reconnaissance et l'Interprétation des Formes).

10.1.6. Scientific Expertise

- Charles Kervrann was member of the selection committee for an Assistant-Professor (Maitre de Conférences) position at the University of Paris-Descartes (Section CNU 26, Mathematics). He was reviewer for European Research Council (ERC Consolidator Grant).
- Patrick Bouthemy was member of the committee for professor promotion at IMT Atlantique.
- Jean Salamero was reviewer for European Research Council (Junior Grant), ANR and ITMO Cancer program.

10.1.7. Research Administration

Charles Kervrann:

- Member of the executive board of the project committee ("bureau du Comite´ des Projets") of the Inria Rennes - Bretagne Atlantique centre since 2010.
- Co-head of the "BioImage Informatics" node (ANR France-BioImaging project http://france-bioimaging.org/), National Research Infrastructure for Biology and Health) since 2011.

Patrick Bouthemy:

- Head of Excellence Lab (Labex) CominLabs (http://www.cominlabs.ueb.eu) since April 2014.
- Deputy member of the board of directors and member of the selection and validation committee of the Images & Réseaux competitivity cluster (http://images-et-reseaux.com/).
- Inria representative in the steering committee of the DGA-Inria collaboration.
- Member of the Research Committee of IMT Atlantique.
- Head of the evaluation committee of the EORD profession of the DGA and head of the HCERES evaluation committee of the DTIS department of ONERA.
- Member of the ANR evaluation committee for the call for proposals regarding the Artificial Intelligence field.

Jean Salamero:

- Director of the National Research Infrastructure in Biology and Health, France BioImaging (2015-2020) (https://france-bioimaging.org/).
- Director of the Service Unit UMS 3714 (2015-2020) CEMIBIO CNRS-Institut Curie.
- Member of the Advisory Committee for the creation of the National Biomedical Imaging Center (NBIC@Beijing, Republic of China) since 2017.
- Member of the Advisory Board of EMBL Core Facilities.
- Member of the Steering Committee of the DIM-ELICIT program (Région Ile de France) since 2016.
- Member of the Qlife "Institut Convergences" since 2018.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Charles Kervrann:

- Engineer Degree: Genomics and Informatics, 4.5 hours, MINES ParisTech.
- Master: From Bioimage Processing to BioImage Informatics, 5 hours, coordinator of the module (30 hours), Master 2 Research IRIV, Telecom-Physique Strasbourg and University of Strasbourg.
- Master: Analysis of Image Sequences, 9 hours, Master 2 Research SISEA, University of Rennes 1.
- Engineer Degree and Master 2 Statistics and Mathematics: Statistical Models and Image Analysis, 37 hours + 15 hours (TP, Emmanuel Moebel), 3rd year, Ecole Nationale de la Statistique et de l'Analyse de l'Information (ENSAI), Rennes.

10.2.2. Supervision

- Anca-Georgiana Caranfil (PhD in progress): Data assimilation methods for cell division mechanisms and molecule trafficking analysis (started in December 2016, supervised by C. Kervrann and Y. Le Cunff (IGDR, Rennes)).
- Gwendal Fouché (PhD in progress): Immersive interaction and visualization of temporal 3D data (started in October 2019, supervised by C. Kervrann, F. Argelaguet (EPC HYBRID, Inria, Rennes), and E. Faure (LIRMM, Montpellier)).
- Yunjiao Lu (PhD in progress): Intracellular dynamics and super-resolution imaging: analysis of bacteria wall at the molecular scale (started in October 2017, supervised by C. Kervrann, A. Trubuil and R. Carballido-Lopez (INRA, Jouy-en-Josas)).
- Léo Maczyta (PhD in progress): Motion saliency in video sequences (started in October 2017, supervised by P. Bouthemy and O. Lemeur (Team Percept, IRISA, Rennes)).

- Sandeep Manandhar (PhD defended [11]): Optical flow methods for 3D fluorescence imaging (defended in November 2019, supervised by P. Bouthemy and C. Kervrann).

- Emmanuel Moebel (PhD defended [12]): New strategies for the identification and enumeration of macromolecules in 3D images of cryo electron tomography (defended in January 2019, supervised C. Kervrann).

- Antoine Salomon (PhD in progress): Statistical aggregation for image analysis in fluorescence microscopy and super-resolution (started in November 2017, supervised by C. Kervrann).

10.2.3. Juries

Charles Kervrann:

- Reviewer of the HdR of E. Baudrier (University of Strasbourg, ICube – UMR 7357).

- Reviewer of the PhDs of A. Davy (University of Paris Saclay, Ecole Normale Supérieure Paris-Saclay, supervised by J.-M. Morel and A. Desolneux), P. Parutto (University of Paris Sciences et Lettres, Ecole Normale Supérieure, supervised by D. Holcman), J.D.K. Hansen (University of Copenhagen, DIKU, Denmark, supervised by F. Lauze).

- President of PhD thesis committee of M. Tassano (University of Paris-Descartes, supervised by J. Delon).

- Member of the PhD committee of P. Naylor (University of Paris Sciences et Lettres, MINES ParisTech, supervised by T. Walter).

- External examiner of the application of M. Arigovindan (Faculty assessment, promotion to the position of Associate Professor with tenure, Indian Institute of Science).

Patrick Bouthemy:

- President of the PhD thesis committee of A. Lopez (University of Rennes 1, supervised by J. Pettré and F. Chaumette).

SIMSMART Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Member of the Organizing Committees

Cédric Herzet is part of the organizing committee of the iTwist'20 Workshop.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Cédric Herzet has given:

- INSA RENNES, 5ième année de l'option Génie Mathématique, cours de Parcimonie en traitement du signal et des images, 10h de cours magistraux + responsable du module
- Ensai RENNES, Master international « Smart Data » , cours « Foundations of Smart Sensing », 9h de cours magistraux
- Ensai RENNES, Master international « Smart Data » , cours « Advanced topics in Smart Sensing » , 3h de cours magistraux
- Ensai RENNES, Master 1, « Régression pénalisée et sélection de modèles » , cours « Advanced topics in Smart Sensing », 6h de cours magistraux + 6 TPs + responsable du module

François Le Gland has given:

- a 2nd year course on introduction to stochastic differential equations, at INSA (institut national des sciences appliquées) Rennes, within the GM/AROM (risk analysis, optimization and modeling) major in mathematical engineering,
- a 3rd year course on Bayesian filtering and particle approximation, at ENSTA (école nationale supérieure de techniques avancées), Palaiseau, within the statistics and control module,
- a 3rd year course on linear and nonlinear filtering, at ENSAI (école nationale de la statistique et de l'analyse de l'information), Ker Lann, within the statistical engineering track,
- and a course on Kalman filtering and hidden Markov models, at université de Rennes 1, within the SISEA (signal, image, systèmes embarqués, automatique, école doctorale MATISSE) track of the master in electronical engineering and telecommunicationst.

8.2.2. Supervision

Cédric Herzet has supervised:

- Soufiane Ait Tilat, PhD, co-supervision with Frédéric Champagnat (Onera, Palaiseau)
- Milan Courcoux-Caro, PhD, co-supervision with Charles Vanwynsberghe (ENSTA Bretagne) and Alexandre Baussard (IUT de Troyes),
- Clément Elvira, postdoc, co-supervision with Rémi Gribonval (Inria Rennes) and Charles Soussen (CentraleSupélec)
- Clément Dorffer, postdoc, co-supervision with Angélique Drémeau (ENSTA Rennes)

Mathias Rousset has supervised:

- Benjamin Dufée, master 2 (with Fredéric Cérou).

François Le Gland has supervised

- Audrey Cuillery, PhD, provisional title: *Bayesian tracking from raw data*, université de Rennes 1, started in April 2016, expected defense in early 2020, funding: CIFRE grant with Naval Group, co–direction: Dann Laneuville (Naval Group, Nantes).

V. Monbet has supervised

- Gabriel Jouan, PhD, Univ Rennes, Scalian, granted by CIFRE.
- Esso-Ridah Bleza, PhD, Univ Bretagne Sud, Janasense, granted by CIFRE.
- Said Obakrim, PhD, Univ Rennes, Ifremer.

8.2.3. *PhD defended*

- Y. Xu (sup.: M. Rousset and P.A. Zitt): Weak over-damped asymptotic and variance reduction
- T.T.T. Chau (sup: V. Monbet): Non-parametric methodologies for reconstruction and estimation in nonlinear state-space models
- M. Morvan (sup: V. Monbet): Modèles de régression pour données fonctionnelles hétérogènes. Application à la modélisation de données de spectrométrie dans le moyen infrarouge

8.2.4. *Juries*

V. Monbet has been a member of the following juries:

- Anders Hildeman - On flexible random field models for spatial statistics: Spatial mixture models and deformed SPDE models, Chalmers University, Sweden.
- Shuaitao Wang - Simulation du métabolisme de la Seine par assimilation de données en continu" , Mines Paris-Tech (reviewer)
- Alban FARCHI - Localisation des méthodes d'assimilation de données d'ensemble, ENPC

François Le Gland has been a member of the following juries:

- (Reviewer) Julien Lesouple (université de Toulouse, adviser : Jean-Yves Tourneret)
- Émilien Flayac (université Paris–Saclay, Orsay, advisers : Frédéric Jean and Karim Dahia)
- Thi Tuyet Trang Chau (université de Rennes 1, advisers : Valérie Monbet and Pierre Ailliot).

8.3. Popularization

8.3.1. *Interventions*

Patrick Héas has made a CS workshop for middle school students based on the ideas of 'Computer Science Unplugged'.

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

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- C. Guillemot has organized, as chair, the ERC-CLIM workshop, May 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Member of the Conference Program Committees

- C. Guillemot has been member of the international steering committee of the Picture Coding Symposium (PCS), 2019.
- C. Guillemot has been member of the technical programme committee of IEEE-ICASSP 2019.
- C. Guillemot has been a member of the technical program committee of the CVPR 2019 workshop on New Trends in Image Restoration and Enhancement (NTIRE), 2019.
- A. Roumy has been a member of the technical program committee of the CVPR 2019 workshop on New Trends in Image Restoration and Enhancement (NTIRE).
- A. Roumy has been a member of the technical program committee of the IEEE International Conference on Communications (ICC) 2019, Workshop on Machine Learning in Wireless Communications (ML4COM).
- A. Roumy has been a member of the technical program committee of the IEEE Wireless Communications and Networking Conference 2019 (IEEE WCNC).
- A. Roumy has been a member of the technical program committee of the International conference on Telecommunications (ICT) 2019.
- A. Roumy has been a member of the technical program committee of the Gretsi 2019 conference, organized by the National Research group in Image and Signal Processing.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- C. Guillemot is senior area editor of the IEEE Trans. on Image Processing.
- C. Guillemot is associate editor of the International Journal on Mathematical Imaging and Vision.
- T. Maugey is associate editor of the EURASIP Journal on Advances in Signal Processing (since Dec 2019).
- A. Roumy is associate editor of the Springer Annals of Telecommunications.
- A. Roumy is associate editor of the IEEE Trans. on Image Processing.

10.1.4. Invited Talks

- C. Guillemot gave a keynote talk on Light field image processing, at the Digital Optical Technologies International Conference, Munich, June 24-27, 2019.
- Thomas Maugey gave a seminar at IRISA's days on Art, Culture and Heritage, Rennes, France, "Data acquisition and compression for user immersion in a virtual scene" (Jan. 2019).
- Thomas Maugey gave a seminar at Orange Labs. PhD days, Rennes, France, "Light Field Acquisition and Depth estimation" (Mar. 2019).

- Thomas Maugey gave a seminar at GdR-Isis, Rennes, France, "Data acquisition and compression for user immersion in a 3D scene" (Mar. 2019).
- A. Roumy gave a talk on "Learning transforms for image compression", workshop on Learning for unstructured data, Univ. Paris 13, Nov. 2019.

10.1.5. Leadership within the Scientific Community

- C. Guillemot is member of the IEEE Signal Processing Society Nominations and Appointments Committee for a two-year term.
- A. Roumy is member of the IEEE IVMSP technical committee.
- A. Roumy is a Local Liaison Officer for the European Association for Signal Processing (EURASIP).
- A. Roumy is a member of the Executive board of the National Research group in Image and Signal Processing (GRETSI).

10.1.6. Scientific Expertise

- C. Guillemot has served as expert in a research proposal selection committee of the Irish Research Council, Feb. 2019.
- C. Guillemot is responsible of the theme « compression et protection des données images » for the realization of the encyclopedia SCIENCES of the publisher ISTE/Wiley (2019-2021).

10.1.7. Research Administration

- C. Guillemot is member of the "bureau du Comité des Projets".
- C. Guillemot has served as a member of the selection committee of a Prof. at the National University of Ireland (NUI), Galway, Ireland, Feb. 2019.
- C. Guillemot has served as a member of the selection committee of a Prof. at the Technical Univ. of Denmark, May 2019.
- A. Roumy is a member of Inria evaluation committee.
- A. Roumy has served as a member of the selection committee of an Assistant Prof. at University Paris 13 (May 2019).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master: C. Guillemot, Image and video compression, 10 hours (2018-2019), and advanced video processing, 4 hours (2018-2019), M2 SISEA, Univ. of Rennes 1, France.
- Undergraduate: L. Guillo, course of 35 hours on Functional immutable programming, 1st year of Mathematiques, Informatique, Electronique, mathematique-Economie" (MIEE), Univ. of Rennes 1
- Master: T. Maugey, course on 3D models in a module on advanced video, 4 hours (2018-2019), 12 hours (2019-2020), M2 SISEA, Univ. of Rennes 1, France.
- Master: T. Maugey, course on Image compression, 10 hours (2019-2020), M2 SISEA, Univ. of Rennes 1, France.
- Master: T. Maugey, course on Representation, editing and perception of digital images, 12 hours, M2 SIF, Univ. of Rennes 1, France.
- Engineering degree: A. Roumy, Sparse methods in image and signal processing, 13 hours, INSA Rennes, 5th year, Mathematical engineering, France.
- Master: A. Roumy, Foundations of smart sensing, 18 hours, ENSAI, Master of Science in Statistics for Smart Data, France.
- Master: A. Roumy, Information theory, 15 hours, University Rennes 1, SIF master, France.

10.2.2. Juries

- C. Guillemot has been reviewer of the PhDs of:
    – B. Ray, UNiv. Poitiers, March 2019
    – T. Trinh Le, Univ. Paris Saclay, June 2019
    – Z. Chen, Chinese Univ. of Hong Kong, June 2019
    – D. Tsai, Queensland Univ. of Technology (QUT), Nov. 2019
    – M. De Pinheiro Carvalho, Univ. Paris Saclay, Nov. 2019
- C. Guillemot has been member of the PhD committees of:
    – M. Bichon, Univ. Rennes 1, March 2019
    – C.A. Noury, Univ. Clermond Ferrand, Nov. 2019
    – S. Manandhar, Univ. Rennes 1, Nov. 2019
- Aline Roumy has been reviewer of the PhDs of:
    – Shuo Zheng, Univ. Paris Saclay, prepared at Telecom ParisTech, Feb. 2019
    – Mohsen Abdoli , Univ. Paris Saclay, prepared at Univ. Paris Sud, June 2019
    – David Kibloff , Univ. Lyon, prepared at Insa Lyon, Sept. 2019
- Aline Roumy has been member of the PhD committees of:
    – Yigit Ugur, Univ. Paris Est, Nov. 2019
    – Fangping Ye, IMT Atlantique, Brest, Dec. 2019

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- C. Guillemot is responsible of the theme « compression et protection des données images » for the realization of the encyclopedia SCIENCES of the publisher ISTE/Wiley (2019-2021).

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

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

- A. Lebre co-organized the TILECS workshop (Towards an Infrastructure for Large-Scale Experimental Computer Science), Grenoble, July 2019.

10.1.2. Scientific Events: Selection

10.1.2.1. Chair of Conference Program Committees

- S. Ibrahim was the program chair of the IEEE BigDataSE 2019.
- S. Ibrahim was the program chair of the Smart Data-2019.
- S. Ibrahim was the track co-chair for the Cloud Computing Track of CCGrid 2019.

10.1.2.2. Member of the Conference Program Committees

- H. Coullon was a member of the program committees of CCGrid 2019 and ICCS 2019.
- S. Ibrahim was a member of the program committees of SC'19, Poster track of SC 2019, ICPP 2019, Cluster 2019, ICA3PP 2019, PDSW@SC'19, and HPBDC@IPDPS'19.
- A. Lebre was a member of the program comittees of ICC 2019, IC2E 2019, CCGRID 2019, Cluster 2019, and CloudCom 2019.
- T. Ledoux was a member of the program committees of the conference Compas'19, of the 1st Workshop on Service Quality and Quantitative Evaluation in new Emerging Technologies @ IC2E'19, CrossCloud'19@CCGrid, and ARM'19@Middleware.
- J.-M. Menaud was a member of the program committees of SMARTGREENS'19, SOFTCOM 19.
- M. Südholt was a member of the program committees of CCGrid'19 and CloudCom'19.

10.1.2.3. Member of the Conference Steering Committees

- A. Lebre is a member of the steering committee of the international conference of Fog and Edge Computing (ICFEC).
- M. Südholt is a member of the steering committee of the international conference Programming.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- A. Lebre is an Associate Editor of the IEEE Transactions on BigData.
- A. Lebre is an Associate Editor of the IEEE Transactions on Cloud Computing.
- S. Ibrahim is an Associate Editor of Springer Frontiers of Computer Science journal.
- M. Südholt is an Associate Editor of the journal Programming.

10.1.3.2. Reviewer - Reviewing Activities

- S. Ibrahim has been a reviewer for the following journals: Future Generation Computer Systems, IEEE Internet Computing.
- A. Lebre has been a reviewer for the IEEE Transactions on Cloud Computing journal.
- T. Ledoux has been a reviewer for the following journals: Journal of Systems Architecture - Elsevier and Future Generation Computer Systems.
- M. Südholt has been a reviewer for the journal Transactions of Software Engineering (IEEE TSE).

10.1.4. Invited Talks

- H. Coullon has given a talk to the WIDE Inria team, "Distributed Software Management: Efficiency, Software Engineering and Verification", Rennes, France, Aug. 2019.
- H. Coullon has given a talk to the joint LaMHa/LTP working group of the GDR GPL, "Efficient and Safe Distributed Software Commissioning", Paris, France, Nov. 2019.
- H. Coullon has given a talk to the Department of Computer Science at the University of Tromsø, the Arctic University of Norway, "Efficient and Safe Distributed Software Commissioning and Reconfiguration", Norway, Dec. 2019.
- A. Lebre has given a talk to the Inria Business Club in Paris, France, May 2019.
- A. Lebre has given a talk to the TILECS Workshop in Grenoble, France, July 2019.
- A. Lebre has given a talk to the Journées Clouds in Toulouse, France, Sept 2019.
- A. Lebre has given a talk to the Inria/Interdigital Workshop in Rennes, France, Dec. 2019.

10.1.5. Scientific Expertise

- A. Lebre is a member of the scientific committe of the joint lab between Inria and Nokia Bell Labs.

10.1.6. Research Administration

- A. Lebre is a member of the executive committee of the GDR CNRS RSD "Réseau et Système distribué" and Co-leader of the transversal action Virtualization and Clouds of this GDR since 2015.
- A. Lebre is a member of the executive and architect committees of the Grid'5000 GIS (Groupement d'intérêt scientifique).
- A. Lebre is a member of the executive committee of the <I/O> Lab, a joint lab between Inria and Orange Labs.
- J. Noyé is the Deputy Head of the Automation, Production and Computer Sciences department of IMT Atlantique.
- J.-M. Menaud is organizer of "Pôle Science du Logiciel et des Systèmes Distribués" in Laboratoire des Sciences du Numérique à Nantes (LS2N). He is involved in the GIS VITTORIA (VIrTual inTegrative Oncology Research and InnovAtion).
- J.-M. Menaud is involved in the GIS PERLE (Pôle d'Excellence de la Recherche Ligérienne en Energie).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- S. Ibrahim is the co-coordinator of the international Master's program in Cloud Computing and Services at University of Rennes 1.
- T. Ledoux is the head of the apprenticeship program in Software Engineering FIL (http://www.imt-atlantique.fr/formation/ingenieur-par-apprentissage/ingenieurs-specialite-ingenierie-logicielle).
  This 3-year program leads to the award of a Master degree in Software Engineering from the IMT Atlantique.
- H. Coullon is responsible for the Computer Science domain of the new apprenticeship program in Industry 4.0 (FIT) of IMT Atlantique. This 3-year program leads to the award of a Master degree in Industry 4.0 from the IMT Atlantique.

10.2.2. Supervision

- PhD: Mohammad Mahdi Bazm, co-director: J.M. Menaud, director: M. Südholt, "Architecture d'isolation unifiée et mécanismes de lutte contre les canaux auxiliaires pour infrastructures cloud décentralisées", Defended July 2019, the8th.

- Phd: Linh Thuy Nguyen, director: A. Lebre, "Fast delivery of Virtual Machines and Containers: Understanding and optimizing the boot operation", defended on Sept 2019, the 24th.
- PhD: Jad Darrous, advisor: S. Ibrahim, director: C. Perez (Avalon), "Scalable and Efficient Data Management in Distributed Clouds: Service Provisioning and Data Processing" Defended Dec 2019, the 17th.
- PhD: Dimitri Saingre, advisor: T. Ledoux, director: J-M. Menaud.
- PhD: Maverick Chardet, advisor: H. Coullon, director: C. Perez (Avalon).
- PhD: Emile Cadorel, advisor: H. Coullon, director: J-M. Menaud.
- PhD: Jolan Philippe, adviros: H. Coullon, M. Tisi (NaoMod), director: G. Sunye (NaoMod).
- PhD: Yewan Wang, advisor: J.-M. Menaud.
- PhD: Maxime Belair, advisor: J.-M. Menaud.
- PhD: Fatima-zahra Boujdad, advisor: M. Südholt.
- PhD: Wilmer Garzon, advisor: M. Südholt.
- PhD: Sirine Sayadi, advisor: M. Südholt.
- Postdoc: David Guyon, advisor: S. Ibrahim.
- Postdoc: Thomas Lambert, advisor: S. Ibrahim.
- Postdoc: Jonathan Pastor, advisor: J.-M. Menaud.
- Postdoc: Rémy Pottier, advisor: J.-M. Menaud.
- Postdoc: Simon Robillard, advisor: H. Coullon.
- Postdoc: Hamza Sahli, advisor: T. Ledoux.
- Postdoc: Alexandre Van Kempen: A. Lebre (until June 2018).
- Engineer: Ronan-Alexandre Cherrueau, advisor: A. Lebre.
- Engineer: Brice Nédelec, advisor: T. Ledoux.
- Engineer: Dimitri Pertin, advisor: H. Coullon (Sept, Oct 2019).
- Engineer: Javier Rojas Balderrama, advisor: M. Simonin/A. Lebre.
- Engineer: Charlène Servantie, advisor: H. Coullon.

10.2.3. Juries

- H. Coullon was a reviewer of the Master thesis committee of Jolan Philippe, "Systematic development of efficient programs on parallel data structures", Northern Arizona University USA, Feb. 05, 2019.
- H. Coullon was a reviewer of the PhD committee of Alexandre Da Silva Veith, "Quality of Service Aware Mechanisms for (Re)Configuring Data Stream Processing Applications on Highly Distributed Infrastructure", Univ. Lyon, Sept. 32, 2019.
- H. Coullon was a reviewer of the PhD committee of KsanderEJJAAOUANI, "Conception du modèle de programmation INKS pour la séparation des préoccupations algorithmiques et d'optimisation dans les codes de simulation numérique ; application à la résolution du système Vlasov/Poisson 6D", Univ. Stasbourg, Nov. 25, 2019.
- S. Ibrahim was a member of the PhD committee of Chaopeng GUO, "Energy-efficient Resource Provisioning for Cloud Databases", Université Paul Sabatier, Jun. 14, 2019.
- A. Lebre was a member of the PhD Committee of Ali Reza Zamani Zadeh Najari, "Scheduling Edge And In-Transit Computing Resources For Stream Processing Applications", University of Rutgers (USA), May 2019.
- A. Lebre was a member of the PhD Committee of Luke Bertot "Improving the simulation of IaaS Clouds", University of Strasbourg (France), June 2019.

- A. Lebre was a reviewer and member of the PhD Committee of Loic Perennou, "Virtual Machine Experience Design: A Predictive Resource Allocation Approach for Cloud Infrastructures". Conservatoire National des Arts et Metier Paris (France), Oct 2019.

- A. Lebre was a member of the PhD Committee of Genc Tato "Lazy and Locality-Aware Building blocks for Fog Middleware: A Service Discovery Use Case", University of Rennes (France), Dec 2019.

- T. Ledoux was a member of the PhD committee of Xinxiu Tao, "Reliability of changes in cloud environment at PaaS level", Univ. Grenoble Alpes, Jan. 29, 2019.

- T. Ledoux was a member of the PhD committee of Amir Teshome Wonjiga, "User-centric security monitoring in cloud environments", Univ. Rennes 1, Jun. 03, 2019.

- T. Ledoux was a reviewer of the PhD committee of Umar Ozeer, "Autonomic Resilience of Distributed IoT Applications in the Fog", Univ. Grenoble Alpes, Dec. 11, 2019.

- J.-M. Menaud was a member of the PhD committee of Léo Grange, "Gestion de centre de données avec sources d'énergies renouvelables intermittentes et incertaines", Univ. Toulouse, Oct. 3, 2019.

10.3. Popularization

10.3.1. Internal or external Inria responsibilities

- S. Ibrahim, Online publication http://emergences.inria.fr/2019/newsletter-n59/l59-Kerstream: *Un intergiciel post-Hadoop pour gérer les flux de données*.

10.3.2. Articles and contents

As a follow-up of the aLIFE workshop (Nantes, Jan. 2018), organized in partnership with colleagues from IMT Atlantique and gathering both academic and industrial partners, Hélène Coullon and Jacques Noyé have participated to a booklet publication [29] summarizing the workshop discussions and proposing a shared vision of what software research could bring to Industry 4.0 initiatives.

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

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events: Organisation

10.1.1.1. General Chair, Scientific Chair

- Hervé Marchand is a member of the IFAC Technical Committees (TC 1.3 on Discrete Event and Hybrid Systems). He is the president of the steering committee of MSR (modélisation de systèmes réactifs).
- Nathalie Bertrand and Nicolas Markey are members of the steering committee of the Summer School MOVEP (*Modélisation et Vérification des Processus Parallèles*).
- Blaise Genest is member of the steering comittee of the international workshop FMAI (*Formal Methods and Artificial Intelligence*).

10.1.1.2. Member of the Organizing Committees

- Blaise Genest coorganized the 2nd workshop FMAI 2019 (Rennes, 2-3 May 2019).

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- Éric Badouel was member of the Program Committees of VECOS, ATAED, ICTAC, CRI, and JIMIS in 2019.
- Nathalie Bertrand was a member of the Program Committees of the following international events: TIME'19, RP'19, MFCS'19.
- Éric Fabre was a member of the Program Committee of CREST'19.
- Blaise Genest was a member of the Program Committee of FMAI'19.
- Loïc Hélouët was member of the Program Committee of ACSD'2019.
- Thierry Jéron served on the Program Committees of ICTSS'19 and SAC-SVT'20.
- Nicolas Markey was a member of the Program Committee of LATA'20.
- Ocan Sankur was a member of the Program Committee of FORMATS'19.

10.1.2.2. Reviewer

In 2019, members of SUMO reviewed submissions for following conferences: VECOS, ATAED, CARI, ICTAC, CONCUR, SOFSEM, FOCS, ATVA, VMCAI, ICALP, SAC-SVT, TAP, ACSD, MFCS, STACS, WODES, HSCC, FSTTCS, CSL, AAMAS, TACAS, FoSSaCS, LICS, PODC, MORE, RP.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Éric Badouel is co-editor-in-Chief of ARIMA Journal.
- Hervé Marchand is associate editor of the journal Discrete Event Dynamical Systems - Theory and applications since january 2019.

10.1.3.2. Reviewer - Reviewing Activities

In 2019, members of SUMO reviewed submissions for following journals: Automatica, Fundamenta Informaticae, Information and Computation, The Scientific Annals of Computer Science, Science of Computer Programming, ACM Transactions on Computational Logic, ACM Transactions on Embedded Computing Systems, Journal of Systems and Software, Mathematical Review (MathSciNet), Journal of Discrete Event Dynamical Systems, Formal Methods in System Design, Software Testing, Verification and Reliability, Journal of Logic and Computation, IEEE Transactions on Automatic Control, PLoS one, Performance Evaluation, Artificial Intelligence, Journal of Logic and Algebraic Methods in Programming, Logical Methods in Computer Science, ACM Transactions on Modeling and Computer Simulation, Journal of Systems and Software.

10.1.4. Invited Talks

- Nathalie Bertrand gave an invited talk at the international conference Formats'19 on Taming real-time stochastic systems.
- Blaise Genest was invited to the workshop SinFra'19 in Singapore and gave a talk on Trust in AI.
- Léo Henry was invited to a workshop on test generation by IMDEA (Madrid) to give a talk about test generation for timed automata using games.

10.1.5. Leadership within the Scientific Community

Nathalie Bertrand is the co-head of the *Groupe de Travail Vérif* (together with Pierre-Alain Reynier (LIS, Marseille)) which is part of *GDR Informatique Mathématique (GDR-IM)*.

10.1.6. Scientific Expertise

- Nathalie Bertrand was a reviewer for Thelam Fund and FWO (Belgium) and Grenoble-MSTIC. She served on the HCERES committee for Vérimag.
- Blaise Genest was reviewer for a DIGICOSME project.
- Loïc Hélouët was reviewer for ANR.
- Thierry Jéron was a reviewer for NWO (Netherlands Organisation for Scientific Research).
- Nicolas Markey served on the HCERES committee for LACL.

10.1.7. Research Administration

- Éric Badouel is the co-director (with Moussa Lo, UGB, Saint-Louis du Sénégal) of LIRIMA, the Inria International Lab for Africa. He is scientific officer for the African and Middle-East region at Inria DPEI (European and International Partnership Department). He is member of the executive board of GIS SARIMA.
- Nathalie Bertrand was nominated member of the Conseil National des Universités, section 27 (computer science) until November 2019.
- Emily Clément is a representative of PhD students in the Comité de Centre of Inria Rennes.
- Éric Fabre is the co-director (with Olivier Audouin, Nokia) of the joint lab of Nokia Bell Labs France and Inria. The lab has been running for 9 years and started in Nov. 2017 its 3rd phase of joint research teams. A series of 6 new started in 2017, for a duration of 4 years. They cover topics like network virtualization, network management, information theory, (distributed) machine learning, network security. SUMO is involved in the joint team SAPIENS.
  Éric Fabre is also a member of Inria Evaluation Commission since September 2019.
- Loïc Hélouët is member of Inria CNHSCT (committee for Health and Security). He is also a suppletive member in the Comité de Centre of Inria Rennes. He leads a working group of the comittee on harrassment, and another of daily life improvement. He is member of a commission at IRISA on harrassment.
- Thierry Jéron is a member of the IFIP Working Group 10.2 on Embedded Systems. He is a member of the Comité d'orientation scientifique (COS) of IRISA Rennes. He was member of the Comité de Centre of Inria Rennes until mid-2019. Since 2016 he is "référent chercheur" for the Inria-Rennes research center.
- Hervé Marchand was chairman of the *Comission des utilisateurs des moyens informatiques* (CUMI) in Rennes until December 2019. He is an elected member of the Comité de Centre at Inria Rennes since June 2019.
- Nicolas Markey manages the mentoring programme at Irisa/InriaRBA; this programme aims at having senior researchers transfering their experience to younger colleagues (including PhD students and postdoc). The programme currently concerns about 30 mentor/mentee pairs.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: Nathalie Bertrand, Advanced Algorithms (ALGO2), 20h, L3, Univ Rennes 1, France;

Licence: Loïc Hélouët, JAVA and algorithms, L2, 40h, INSA de Rennes, France.

Master: Éric Badouel, Logic and argumentation, 32h, Univ Yaoundé I, Cameroon.

Master: Nathalie Bertrand, Language Theory; Algorithms, 20h, Agrégation, ENS Rennes, France.

Master: Éric Fabre, Models and Algorithms for Distributed Systems (MADS), 10h, M2, Univ Rennes 1, France;

Master: Éric Fabre, Information Theory, 15h, M1, ENS Rennes, France.

Master: Loïc Hélouët, Algorithms, 4h, Agrégation, ENS Rennes, France;

Master: Loïc Hélouët, Algorithms and proof, 12h, Agrégation, ENS Rennes, France;

Master: Nicolas Markey, Verification of Complex Systems (CSV), 15h, M2, Univ Rennes 1, France;

Master: Nicolas Markey, Algorithms, 12h, Agrégation, ENS Rennes, France;

Master: Ocan Sankur, Verification of Complex Systems (CSV), 10h, M2, Univ Rennes 1, France;

Master: Ocan Sankur, *Travaux pratiques*, Analyse et Conception Formelle (ACF), 22h, M1, Univ Rennes 1, France;

10.2.2. Supervision

10.2.2.1. PhD Students

- PhD: Robert Fondze Jr Nsaibirni, A Guarded Attribute Grammar Based Model for User Centered, Distributed, and Collaborative Case Management – Case of the Disease Surveillance Process [3], supervised by Éric Badouel. Defended at the University of Yaoundé I, Cameroon in April 2019.

- PhD: Karim Kecir, Performance Evaluation of Urban Rail Traffic Management Techniques [2], supervised by Loïc Hélouët and Pierre Dersin (Alstom), Université Rennes 1, July 2019.

- PhD: Samy Jaziri, Automata on Timed Structures, supervised by Nicolas Markey, Université Paris Saclay, September 2019.

- PhD: Mauricio Gonzalez, Stochastic Games on Graphs with Applications to Smart-Grids Optimization, supervised by Nicolas Markey, Université Paris Saclay, November 2019.

- PhD: Hugo Bazille, Detection and Quantification of Events in Stochastic Systems [1], supervised by Blaise Genest and Éric Fabre, Université Rennes 1, December 2019.

- PhD: The Anh Pham, Efficient state-space exploration for asynchronous distributed programs - Adapting unfolding-based dynamic partial order reduction to MPI programs [4], supervised by Thierry Jéron and Martin Quinson (Myriads, Inria Rennes), ENS Rennes, December 2019.

- PhD in progress: Sihem Cherrared, Diagnosis of multi-tenant programmable networks, started Dec. 2016, Éric Fabre, Gregor Goessler (Inria, Spades) and Sofiane Imadali (Orange).

- PhD in progress: Emily Clément, Verification and synthesis of control systems: efficiency and robustnes, started Dec. 2018, supervised by Thierry Jéron, Nicolas Markey, and David Mentré (Mitsubishi Electric)

- PhD in progress: Rodrigue Djeumen Djatcha, Collaborative Model for Urban Crowdsourcing, started in September 2017, University of Douala, Cameroon, supervised by Éric Badouel.

- PhD in progress: Erij Elmajed, Diagnosis of reconfigurable systems, started March 2017, Éric Fabre and Armen Aghasaryan (Nokia).

- PhD in progress: Léo Henry, Optimal test-case generation with game theory, started Oct. 2018, supervised by Thierry Jéron and Nicolas Markey.

- PhD in progress: Abdul Majith, Control of Adaptive Systems, started in Jan. 2019, supervised by Hervé Marchand, Ocan Sankur, and Dinh Thai-Bui (Nokia Bell Labs).
- PhD in progress: Anirban Majumdar, Games for distributed networks: models and algorithms, ENS Paris Saclay, started Sept 2018, supervised by Nathalie Bertrand and Patricia Bouyer (LSV).
- PhD in progress: Arthur Queffelec, Tradeoff between Robustness and Optimality in Strategic Reasoning, started Nov. 2018, supervised by Ocan Sankur and François Schwarzentruber (Logica, IRISA).
- PhD in progress: Victor Roussanaly, Efficient verification of timed systems, started Sep. 2017, supervised by Nicolas Markey and Ocan Sankur.
- PhD in progress: Suman Sadhukhan, Modelling and parameterized verification of mobile networks, started Oct. 2018, supervised by Nathalie Bertrand, Nicolas Markey and Ocan Sankur.
- PhD in progress: Rituraj Singh, Data-centric Workflows for Crowdsourcing Applications, started Feb. 2018, supervised by Loïc Hélouët.
- PhD in progress: Bastien Thomas, Automated verification of randomized distributed algorithms, started in Oct. 2019, supervised by Nathalie Bertrand and Josef Widder (Interchain, Austria).

10.2.2.2. Master Students

- Nathalie Bertrand supervised the master's thesis (M2) of Bastien Thomas, feb-june 2019.
- Blaise Genest and and Léo Henry supervise (2 h/week during 6 months) Alexandre Drewery, a master 1 student. The topic is reinforcement learning of mixed discrete/continuous systems.

10.2.2.3. Other Internships

- L3 Internship of Pierre Boudard, ENS ULM, supervised by Éric Fabre.
- L2 Internship of Kritin Garg, supervised by Éric Fabre and Blaise Genest.
- L3 Internship of Sharvik Mital, supervised by Blaise Genest and Loïc Hélouët.
- L3 Internship of Mathieu Poirier, supervised by Éric Badouel and Adrian Puerto Aubel.

10.2.3. Juries

10.2.3.1. PhD Defenses

- Nathalie Bertrand was an examiner for the PhD thesis of Damien Busatto-Gaston (Université Aix-Marseille, december 2019).
- Éric Fabre took part to the jury for the PhD in Computer Science of Maha Mdini, Institut Mines Telecom (IMT) Atlantique, Sept. 2019
- Blaise Genest was a reviewer for the PhD of Sukanya Basu, IIT Bombay, India.
- Hervé Marchand was an examiner in the PhD defense of Raphael Jakse, Université Grenoble Alpes in December 2019.
- Nicolas Markey was a reviewer for the PhD thesis of Nicola Gigante, Jan 2019, University Udine, Italy.

10.2.3.2. Other Juries

- Nathalie Bertrand was in the *Moyens incitatifs* committee for Inria Rennes Bretagne Atlantique in 2019.
- Éric Fabre was in the hiring committee for CRCN positions at Inria Rennes Bretagne Atlantique in 2019.
- Ocan Sankur was in the hiring committee for two Maitre de conférences positions at Université de Nantes in 2019.

10.3. Popularization

10.3.1. Education

Nicolas Markey is involved in the organization of action "J'Peux Pas, J'Ai Informatique", whose aim is to break down stereotypes about computer science for 12-year-old pupils.

TAMIS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events: Selection

9.1.1.1. Member of Conference Steering Committees

Olivier Zendra is a founder and a member of the Steering Committee of ICOOOLPS (International Workshop on Implementation, Compilation, Optimization of OO Languages, Programs and Systems)

9.1.1.2. Member of the Conference Program Committees

Annelie Heuser was a member of the following conference program committees: CARDIS 2019, COSADE 2019, PROOFS 2019.
Olivier Zendra was a member of the program committee of ICOOOLPS 2019.

9.1.1.3. Reviewer

Tania Richmond was a reviewer for TCHES 2019 and TCHES 2020.
Alexandre Gonzalvez was a reviewer for TCHES 2019.
Matthieu Mastio was a reviewer for DATE2020.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

Annelie Heuser was a member of TCHES 2019.

9.1.2.2. Reviewer - Reviewing Activities

Annelie Heuser was a reviewer of several papers in Journal of Cryptographic Engineering, Transactions on Information Forensics & Security, IEEE Transactions on Circuits and Systems, Transactions on Information Forensics & Security.
Tania Richmond was a reviewer for Transactions on Information Forensics and Security (TIFS)

9.1.3. Invited Talks

Annelie Heuser was invited to present at the seminar of Paris 8 on "Mathématiques Discrètes, Workshop Workshop on Randomness and Arithmetics for Cryptography on Hardware, Codes et Cryptographie", GDR Sécurité - Sécurité, fiabilité et test des SoC2, the Summer School on real-world crypto and privacy.
Annelie Heuser was invited to the Dagstuhl seminar on Secure Composition for Hardware Systems.
Annelie Heuser was invited to the Lorentzcenter on AI+Sec: Artificial Intelligence and Security, and SHARD: Bridging the Gap Between Software and Hardware Security.

9.1.4. Expertise

Tania Richmond reviewed for the HiPEAC Collaboration Grants 2019.
Annelie Heuser reviewed an application to receive a national application grant (inside Europe).
Olivier Zendra is a CIR expert for the MENESR.
Olivier Zendra participated to the CRHC and CRCN national juries for Inria as a member of Inria's evaluation committee.
Olivier Zendra is a member of the editorial board and co-author of the "HiPEAC Vision 2021"

9.1.5. Research Administration

Olivier Zendra is a member of Inria's evaluation committee.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Christophe Genevey-Metat taught:

- Programming in Java to Licence 1, University Rennes 1,
- Introduction at Security to Master 1, University Rennes 1.

Cassius de Oliveira Puodzius taught:

- 24h of Reverse Engineering + Malware analysis for the Introduction at Security to Master1 at Rennes 1,
- 6h of Java Programming to Licence1 at ECAM Rennes.

Tania Richmond taught Physical Attacks in "Préparation à l'Agrégation" en Sciences de l'Ingénieur, ENS Rennes.

9.2.2. Supervision

- PhD in progress: Christophe Genevey Metat (Rennes 1): , October 2018, Jean-Marc Jezequel, Benoit Gerard, Annelie Heuser and Clementine Maurice
- PhD in progress : Alexandre Gonzalvez, On Obfuscation via crypto primitives, April 2016, Caroline Fontaine.
- PhD defended in 2019 : Nisrine Jafri (Rennes1), On fault Injection detection with MC of Binary code, Axel Legay and Jean-Louis Lanet.
- PhD in progress : Tristan Ninet (Rennes 1), Vérification formelle d'une implémentation de la pile protocolaire IKEv2, December 2016, Stéphanie Delaune, Romaric Maillard and Olivier Zendra
- PhD in progress: Lamine Nouredine (Rennes1); Automatic techniques for packing detection, classification and unpacking to stop malware propagation, November 2017, Stephane Ubeda, Olivier Zendra, Annelie Heuser.
- PhD in progress: Cassius de Oliveira Puodzius (Rennes1); Threat malware analysis, February 2019, Ludovic Me, Olivier Zendra, Annelie Heuser.
- PhD in progress: Duc Phuc Pham (Rennes1); Malware analysis through side-channel information, May 2019, Jean-Louis Lanet, Annelie Heuser, Olivier Zendra.

9.2.3. Juries

- Annelie Heuser was a referee for the PhD defense of Nisrine Jafri (University Rennes).
- Olivier Zendra was a member of the jury for the PhD defense of Delphine Beaulaton at University of Southern Brittany in Vannes.

TEA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Selection

Jean-Pierre Talpin served in the program committee of the ACM LCTES'19, ACM SAC'19 and SCOPES'19 conferences.

Thierry Gautier reviewed articles for *Journal of Systems Architecture* (Elsevier).

10.1.2. Journal

Jean-Pierre Talpin is Associate Editor with the ACM Transactions for Embedded Computing Systems (TECS).

Thierry Gautier reviewed articles for *IEEE Access* and *Science of Computer Programming*.

10.1.3. Invited Talks

Jean-Pierre Talpin gave an invited presentation entitled "Towards verified programming of embedded devices" at DATE'19, Florence.

10.2. Teaching - Supervision - Juries

Jean-Pierre Talpin gave a one week graduate-level course at the Sheng Yuan Honors College, BUAA, entitled: "introduction to program verification".

Jean-Pierre Talpin co-supervises the PhD Theses of Stéphane Kastenbaum, Simon Lunel, Liangcong Zhang, Jean-Joseph Marty and Lucas Franceschino

Thierry Gautier served as external assessor for professor position application at Nankai University (China).

WIDE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Member of the Organizing Committees

François Taïani and Erwan Le Merrer served as Co-Organizer of the 9th Inria/Interdigtal Workshop On Systems (WOS9), Rennes, France, December 2019.

François Taïani served as Posters and Demos Co-Chair of the 38th IEEE International Symposium on Reliable Distributed Systems (SRDS 2019), Lyon, France, October 2019.

Erwan Le Merrer served as Co-Organizer of the "Atelier sur les algorithmes en boite-noire", Lyon, France, December 2019.

9.1.2. Scientific Events Selection

9.1.2.1. Chair of Conference Program Committees

François Taïani served as PC Co-Chair of the 3rd Workshop on Scalable and Resilient Infrastructures for Distributed Ledgers (SERIAL'19), collocated with Middleware 2019, Davis, CA, USA, December 2019.

François Taïani served as Co-Chair of the Shadow PC of the European Conference on Computer Systems (EuroSys 2019), Dresden, Germany, March 2019.

Erwan Le Merrer served as Co-Chair of the "Rencontres Francophones sur les Aspects Algorithmiques des Télécommunications" (Algotel 2019), France, June 2019.

9.1.2.2. Member of the Conference Program Committees

François Taïani served on the PC of the Conférence d'informatique en Parallélisme, Architecture et Système (COMPAS2019), Anglet, France, June 2019.

François Taïani served on the PC of the 18th Workshop on Adaptive and Reflexive Middleware (ARM'19@MW), co-located with Middleware 2019, Davis, CA, USA, December 2019.

François Taïani served on the PC of the 49th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2019), Portaland, OR, USA, June 2019.

François Taïani served on the PC of the International Conference on Blockchain Economics, Security and Protocols (Tokenomics 2019), Paris, France, May 2019.

Davide Frey served on the PC of the 5th Workshop on Planetary-Scale Distributed Systems (W-PSDS), co-located with SRDS 2019, Lyon, France, October 2019.

Davide Frey served on the PC of the 13th ACM International Conference on Distributed and Event-Based Systems (DEBS), Darmstadt, Germany, June 2019.

Davide Frey served on the PC of the 19th International Conference on Distributed Applications and Interoperable Systems (DAIS), Copenhagen, Denmark, June 2019.

George Giakkoupis served on the PC of the 31st ACM Symposium on Parallelism in Algorithms and Architectures (SPAA), Phoenix, AZ, USA, June 22–24, 2019.

George Giakkoupis served on the PC of the 33rd International Symposium on Distributed Computing (DISC), Budapest, Hungary, Oct. 14–18, 2019.

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing Activities

François Taïani was a reviewer for IEEE Transactions on Knowledge and Data Engineering (TKDE).

Davide Frey was a reviewer for the International Journal of Computer and Telecommunications Networking (COMNET).

Davide Frey was a reviewer for Peer-to-Peer Networking and Applications (PPNA).

Davide Frey was a reviewer for the ARIMA Journal.

George Giakkoupis was a reviewer for Journal of the ACM (JACM).

George Giakkoupis was a reviewer for Journal of Parallel and Distributed Computing (JPDC).

George Giakkoupis was a reviewer for ACM Transactions on Parallel Computing (TOPC).

George Giakkoupis was a reviewer for Distributed Computing (DIST).

9.1.4. Collaborative Projects

Davide Frey was a reviewer for the Agence Nationale de Recherche (ANR).

9.1.5. Invited Talks

François Taïani. Pleiades: Distributed Structural Invariants at Scale. 4th GDR RSD and ASF Winter School on Distributed Systems and Networks 2019, Pleynet, Sept Laux, France, 6 February 2019.

François Taïani. Pleiades: Distributed Structural Invariants at Scale. Lancaster University, Lancaster, UK, 23 May 2019.

Erwan Le Merrer. Tweaking neural models: watermarking and tamperproofing them. EPFL-Inria workshop, EPFL, Lausanne, 30 January 2019.

François Taïani. How to Be a Terrible Higher Education Teacher in 7 Easy Steps. IRISA Annual D1 Departmental Seminar, IRISA, Rennes, 29 November 2019.

9.1.6. Leadership within the Scientific Community

Michel Raynal has been Adjunct Professor at the Polytechnic University of Hong Kong since 2013.

Michel Raynal has been a member of the Executive board of the SIF (Société d'Informatique Française) since 2013.

Michel Raynal is European representative at the IEEE Technical Committee on distributed computing.

François Taïani has been a member of the Gilles Kahn PhD Award in Computer Science, from Société Informatique de France (SIF) since 2018.

9.1.7. Research Administration

Davide Frey is Correspondant Scientifique Europe at the DPEI for Inria Rennes.

Davide Frey is an associate member of the COST-GTRI of Inria.

François Taïani is a Career Advice Person, (*Référent conseil-parcours professionel chercheurs*) for IRISA/Inria Rennes Bretagne Atlantique since 2019.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: Florestan De Moor, Programmation Dirigée par la Syntaxe, 22h, M1-SIF, Université de Rennes 1, France

Engineering School: François Taïani, Synchronization and Parallel Programming, 62h, 2nd year of Engineering School (M1), ESIR / Univ. Rennes I, France.

Engineering School: François Taïani, Distributed Systems, 24h, 3rd year of Engineering School (M2), ESIR / Univ. Rennes I, France.

Engineering School: François Taïani, Introduction to Operating Systems, 24h, 1st year of Engineering School (L3), ESIR / Univ. Rennes I, France.

Bacherlor: François Taïani, Distributed Algorithms, 12h, L3 Parcours SI, ENS Rennes, France.

Master: Davide Frey, Programming Technologies for the Cloud, 28h, M2, Univ. Rennes I, France.

Master: Davide Frey, Scalable Distributed Systems, 10 hours, M1, EIT/ICT Labs Master School, Univ. Rennes I, France.

Master: Davide Frey, Big-Data Storage and Processing Infrastructures, 10 hours, M2-SIF, Univ. Rennes I, France.

Master: Davide Frey, Cloud Computing, 6 hours, M2-MIAGE, Univ. Rennes I, France.

Master: Davide Frey, Distributed Systems, 12 hours, ENSAI, France.

Master: Davide Frey, Apprentice Tutoring, 8 ETD hours, M2 Alternance Univ. Rennes I, France.

Master: Quentin Dufour and Davide Frey, 12 ETD hours, M1 ISTIC, Univ. Rennes I, France.

Master / PhD: Davide Frey, Distributed Computing and Blockchain, 15 hours, UM6P, Morocco.

Master: Erwan Le Merrer, Projet , 36 ETD hours, M1 ISTIC, Univ. Rennes I, France.

Master: Erwan Le Merrer, Network Science, 12 hours, M2 ESIR, Univ. Rennes I, France.

Master: Quentin Dufour and Louison Gitzinger, Cloud, 36 hours, M2 ESIR, Univ. Rennes I, France.

Master: Quentin Dufour, TLC, 18 hours, M2 ISTIC, Univ. Rennes I, France

Master: George Giakkoupis, Systèmes Répartis, 9 hours, ENSAI Rennes, France.

9.2.2. Supervision

PhD: Adrien Luxey, "E-squads: A novel paradigm to build privacy-preserving ubiquitous applications" [13], University of Rennes 1, 29th November 2019, David Bromberg.

PhD in progress: Quentin Dufour, BBDA - Browser Based Data Analytics, January 2018, David Bromberg and Davide Frey.

PhD in progress: Amaury Bouchra Pilet, Robust and Lightweight Overlay Management for Decentralized Learning, University of Rennes 1, September 2018, David Bromberg and Davide Frey.

PhD in progress: Loïck Bonniot, Distributed Troubleshooting of Edge-Compute Functions, University of Rennes 1, François Taïani and Christoph Neumann (Interdigital, CIFRE).

PhD in progress: Alejandro Gomez Boix, Distributed counter-measure against browser fingerprinting, Inria, Davide Frey and David Bromberg.

PhD in progress: Alex Auvolat, Towards probabilistic decentralized systematic design for large-scale privacy-preserving collaborative systems, University of Rennes 1, François Taïani and David Bromberg.

PhD in progress: Hayk Saribekyan, Randomized Algorithms for Distributed Information Dissemination, University of Cambridge, UK, George Giakkoupis and Thomas Sauerwald (U. Cambridge).

HDR: Davide Frey, Epidemic Protocols: From Large Scale to Big Data, University of Rennes 1, 11 Juin 2019 [12].

9.2.3. Juries

François Taïani was an examiner for Cédric Maigrot's PhD thesis: Détection de fausses informations dans les réseaux sociaux, Université de Rennes 1 (France), 1st April 2019.

François Taïani was a reviewer for João Paulo de Araujo's PhD thesis: A Communication-Efficient Causal Broadcast Publish/Subscribe System, Sorbonne Université, LIP6 (France), 5th April 2019.

François Taïani was an external examiner (reviewer) for Assylbek Sagitzhanuly Jumagaliyev's PhD thesis: A Modeling Language for Multi-tenant Data Architecture Evolution in Cloud Applications, Lancaster University (UK), 23rd May 2019.

François Taïani was an examiner for Gilles Tredan's HDR: Capturing Binary Graphs, Université de Toulouse 3 (France), 21st June 2019.

François Taïani was an examiner for Nathanaël Cheriere's PhD thesis: Towards Malleable Distributed Storage Systems: from Models to Practice, ENS Rennes, 5th November 2019.

François Taïani was an examiner for The Anh Pham's PhD thesis: Efficient state-space exploration for asynchronous distributed programs, ENS Rennes, 6th December 2019.

François Taïani was an examiner for Oscar Luis Vera Perez's PhD thesis: Dynamic program analysis for suggesting test improvements to developers, University of Rennes 1, 17th December 2019.

George Giakkoupis was an external reviewer for Suman Sourav's PhD thesis: Latency, Conductance, and the Role of Connectivity in Graph Problems, National University of Singapore, 11 November 2019.

9.3. Popularization

Algorithm Watch wrote an article about a recent work involving Erwan Le Merrer, concernant remote transparency. The article is called "Explainable AI doesn't work for online services – now there's proof". Avaiable at https://algorithmwatch.org/en/story/explainable-ai-doesnt-work-for-online-services-now-theres-proof/.