



RESEARCH CENTER  
Nancy - Grand Est

FIELD

Activity Report 2018

# Section Dissemination

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## CAMUS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organization

#### 10.1.1.1. Member of Organizing Committees

Philippe Clauss organized the Special Session on Compiler Architecture, Design and Optimization (CADO) of the 16th International Conference on High Performance Computing & Simulation (HPCS 2018), June 2018, Orléans, France.

Cédric Bastoul co-organized HIP3ES 2018 (International Workshop on High Performance Energy Efficient Embedded Systems), in conjunction with the international conference HiPEAC 2018.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of Conference Program Committees

Cédric Bastoul and Philippe Clauss have been part of the program committee of IMPACT 2018 (International Workshop on Polyhedral Compilation Techniques), held in conjunction with the international conference HiPEAC.

Cédric Bastoul and Vincent Loechner are part of the program committee of HIP3ES (International Workshop on High Performance Energy Efficient Embedded Systems) in conjunction with the HiPEAC international conference.

Arthur Charguéraud was a member of the program committee for the Symposium on Implementation and Application of Functional Languages (IFL 2018).

Cédric Bastoul has been part of the program committee of the international conference on Compiler Construction 2018 (CC'2018).

#### 10.1.2.2. Reviewer

Philippe Clauss has been reviewer for the following conference and workshop: the 2nd International Conference on Computer Science and Application Engineering (CSAE 2018), the International Workshop on Polyhedral Compilation Techniques (IMPACT 2018).

Jens Gustedt has been reviewer for CCGrid 2018.

Arthur Charguéraud has been reviewer for the 30th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA 2018).

Cédric Bastoul has been reviewer for: international conference on Compiler Construction 2018 (CC'2018), the International Workshop on Polyhedral Compilation Techniques (IMPACT 2018), the International Workshop on High Performance Energy Efficient Embedded Systems (HIP3ES 2018).

### 10.1.3. Journals

#### 10.1.3.1. Member of Editorial Boards

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

#### 10.1.3.2. Reviewer - Reviewing Activities

Bérenger Bramas has been reviewer for the following journal: PPL (Parallel Processing Letters).

Philippe Clauss has been reviewer for the following journals: Engineering Computations, IEEE Transactions on Computers, Future Generation Computer Systems.

Jens Gustedt has been a reviewer for Discrete Applied Mathematics.

Arthur Charguéraud has been reviewer for LFMTTP (Logical Frameworks and Meta Languages: Theory and Practice).

Cédric Bastoul has been reviewer for IEEE Transactions on Computers.

#### 10.1.4. Invited Talks

Philippe Clauss has been invited at the Dagstuhl Seminar dedicated to Loop Optimization, March 11-16, 2018. The title of his talk was: *The Polyhedral Model Beyond Static Compilation, Affine Functions and Loops*.

Vincent Loechner has been invited as a speaker at the plenary session of the *journées doctorales du laboratoire d'informatique de l'université de Batna* (Algeria), April 25-26 2018, for a talk entitled *Code Optimizations Using the Polyhedral Model*.

#### 10.1.5. Scientific Expertise

##### 10.1.5.1. Standardization

Since Nov. 2014, Jens Gustedt is a member of the ISO working group SC22-WG14 for the standardization of the C programming language and serves as co-editor of the standards document. He participates actively in the **clarification report** processing, the planning of future versions of the standard and in an subgroup that discusses the improvement of the C memory model.

He was the one of the main forces behind the elaboration of C17, the new version of the C standard that has finally been published by ISO in 2018 [21].

This work on the C programming language also gave rise to the proposal of a language extension, **Modular C**. It has been used for the implementation of an efficient toolbox for *higher order automatic differentiation*, *arbogast*, see [9], and for the implementation of the work presented in [19].

##### 10.1.5.2. Expertise

Cédric Bastoul as been an expert for the French research ministry and the French finance ministry for the research tax credit programme.

#### 10.1.6. Research Administration

Jens Gustedt is head of the ICPS team for the ICube lab, and in that function a member of the directory committee of the lab. He is also a member of the local recruiting commission for phds and postdocs of the Inria Center Nancy — Grand Est.

Philippe Clauss and Cédric Bastoul are members of the *Collegium Sciences* of the University of Strasbourg, which is a group of representative scientists providing advice regarding the funding of projects.

Philippe Clauss is a member of the *Bureau du Comité des Projets* of the Nancy Grand Est Inria Center since November 2018. This group of scientists provide assistance to the Director of the Center regarding the recruitment of PhD or post-doc students and Engineers, the funding of projects and provide also some scientific expertise regarding actions of the Center.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : Philippe Clauss, Architecture des ordinateurs, 18h, L2, Université de Strasbourg, France

Licence : Philippe Clauss, Bases de l'architecture informatique, 22h, L1, Université de Strasbourg, France

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

Master : Philippe Clauss, Système et programmation temps-réel, 37h, M1, Université de Strasbourg, France

Master : Philippe Clauss, Optimisation et transformations de codes, 31h, M1, Université de Strasbourg, France

Master : Bérenger Bramas, Compilation, 40h, M1, Université de Strasbourg, France  
 Licence : Jens Gustedt, systèmes concurrents, 20h, Université de Strasbourg, France  
 Master : Jens Gustedt, parallélisme, 14h, M1, Université de Strasbourg, France  
 Licence : Vincent Loechner, responsable pédagogique de la licence professionnelle ARS, L3, Université de Strasbourg, France  
 Licence : Vincent Loechner, accompagnement et jury de VAE licence professionnelle ARS, L3, Université de Strasbourg, France  
 Licence : Vincent Loechner, administration système et internet, 40h, L3, Université de Strasbourg, France  
 Master : Vincent Loechner, langages interprétés, 34h, M1, Université de Strasbourg, France  
 Master : Vincent Loechner, OS embarqués, 30h, M2, Université de Strasbourg, France  
 Master : Vincent Loechner, calcul parallèle, 20h, , Université de Strasbourg, France  
 IUT d'Informatique : Alain Ketterlin, Architecture et programmation des mécanismes de base d'un système informatique, 68h, Université de Strasbourg, France  
 Licence : Alain Ketterlin, Algorithmique et programmation L1, 82h, Université de Strasbourg, France  
 Master (Informatique) : Alain Ketterlin, Ingénierie de la preuve en Coq, 18h, Université de Strasbourg, France  
 Master (Calcul Scientifique et Mathématiques de l'Information) : Alain Ketterlin, Compilation et optimisation, 28h, Université de Strasbourg, France  
 Licence : Cédric Bastoul, Computer architecture, 92h, L1, Université de Strasbourg, France  
 Licence : Cédric Bastoul, Parallel programming, 20h, L3, Université de Strasbourg, France  
 Master : Cédric Bastoul, Compiler Design, 48h, M1, Université de Strasbourg, France  
 Master : Cédric Bastoul, Introduction to Research, 10h, L2+M1, Université de Strasbourg, France  
 Licence : Éric Violard, Modèles de Calcul, 29h, L1, Université de Strasbourg, France  
 Licence : Éric Violard, Programmation fonctionnelle, 85h, L2, Université de Strasbourg, France  
 Licence : Éric Violard, Architecture des ordinateurs, 54h, L2, Université de Strasbourg, France  
 Licence : Éric Violard, Logique et programmation logique, 27h, L2, Université de Strasbourg, France  
 Licence : Éric Violard, Systèmes concurrents, 9h, L3, Université de Strasbourg, France  
 Licence : Éric Violard, Algorithmique et structures de données, 39h, L3, Université de Strasbourg, France  
 Licence : Jens Gustedt, systèmes concurrents, 20h, Université de Strasbourg, France  
 Master : Jens Gustedt, parallélisme, 14h, M1, Université de Strasbourg, France

### 10.2.2. Supervision

PhD in progress: Salwa Kobeissi, *Dynamic parallelization of recursive functions by transformation into loops*, September 2017, Philippe Clauss  
 PhD: Mariem Saied, *Automatic Code Generation for Multi-Dimensional Stencil Computations on Distributed-Memory Architectures*, Sep. 2018, Jens Gustedt and Gilles Muller.  
 PhD in progress: Daniel Salas, *Integration of the ORWL model into parallel applications for medical research*, since Mar 2015, Jens Gustedt and Isabelle Perseil.  
 PhD in progress: Harenome Ranaivoarivony-Razanajato, *Hierarchical Parallelization and Optimization*, Oct. 2016, Cédric Bastoul and Vincent Loechner

PhD in progress: Paul Godard, *Parallelization and Scalability of a Graphical Pipeline for Professional Inkjet Printing*, Jun. 2016, Cédric Bastoul and Vincent Loechner

PhD in progress: Maxime Schmitt, *Automatic Generation of Adaptive Codes*, Sep. 2016, Cédric Bastoul and Philippe Helluy

PhD: Yann Barsamian, *Pic-Vert: A Particle-in-Cell Implementation for Multi-Core Architectures*, Université de Strasbourg, 31 Oct. 2018, Éric Violard.

PhD in progress: Armaël Généau, *Formal verification of complexity analyses*, since Sept 2016, co-advised by Arthur Charguéraud and François Pottier, from team Gallium (Inria Paris), where Armaël is located.

### 10.2.3. Juries

Philippe Clauss participated to the following PhD committees in 2018:

Date	Candidate	Place	Role
Apr. 25	Mohamed Said MOSLI BOUKSIAA	Université de Paris-Saclay	Reviewer
Nov. 26	Adilla SUSUNGI	University de Paris Sciences et Lettres	Reviewer

Cédric Bastoul participated to the following PhD committees in 2018:

Date	Candidate	Place	Role
Sep. 25	Mariam Said	Université de Strasbourg	President
Dec. 13	Jie Zhao	École Normale Supérieure	Reviewer

## 10.3. Popularization

### 10.3.1. Articles and contents

Jens Gustedt is blogging about efficient programming, in particular about the [C programming language](#). To popularize the development of the future C2x standard he has been interviewed for [infoQ](#). He also is an active member of the [stackoverflow community](#) a technical Q&A site for programming and related subjects.

### 10.3.2. Education

A. Charguéraud is a co-organizer of the *Concours Castor informatique*. The purpose of the Concours Castor is to introduce pupils (from *CM1* to *Terminale*) to computer sciences. More information on: <http://castor-informatique.fr/>.

### 10.3.3. Interventions

Cédric Bastoul prepared activities and participated to *Fête de la Science* at University of Strasbourg in October 2018.

## **CARAMBA Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific Events Organisation**

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

Paul Zimmermann co-organized two workshops on the development of the iRRAM, GNU MPFR and GNU MPC libraries: one in Dagstuhl in April, with 10 participants, and one in Trier in November, with 12 participants.

Paul Zimmermann also chaired the organizing committee of the EJCIM (*École Jeunes Chercheurs Informatique Informatique Mathématique*) which took place in Nancy in 2018.

### **10.1.2. Scientific Events Selection**

Emmanuel Thomé is a member of the scientific directorate of the Dagstuhl computer science seminar series.

#### *10.1.2.1. Member of steering committees*

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

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

Paul Zimmermann was a member of the program committee of ANTS XIII (Thirteenth Algorithmic Number Theory Symposium, University of Wisconsin, Madison, WI, USA).

### **10.1.3. Journal**

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

- Virginie Lallemand is a member of the editorial board of the IACR Transactions on Symmetric Cryptology (ToSC) Journal for 2018/2019. This journal is the open-access journal associated to the International Conference on Fast Software Encryption (FSE).
- Marine Minier is a guest editor of the special issue of Workshop on Coding and Cryptography (WCC) in the journal Designs, Codes and Cryptography (DCC).

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

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

### **10.1.4. Invited Talks**

- Emmanuel Thomé was invited to give a talk at the ANTS-XIII conference (Madison, WI, USA).
- Marine Minier was invited to give a talk at the Journées Nationales du GT Codage & Cryptographie, Aussois, France.
- Marine Minier was invited to give a talk at Journée “Protection du code et des données, obfuscation & whitebox cryptography”, Paris Saclay, France.
- Paul Zimmermann was invited to give a talk at the topical workshop Celebrating 75 Years of Mathematics of Computation (ICERM, Providence, RI, USA).
- Pierrick Gaudry was invited to give a talk at the 22nd Workshop on Elliptic Curve Cryptography (ECC 2018) in Osaka, Japan.

### **10.1.5. Research Administration**



- Jérémie Detrey chairs the *Commission des Utilisateurs des Moyens Informatiques* (CUMI) of the Inria Nancy – Grand Est research center.
- Pierrick Gaudry is vice-head of the *Commission de mention Informatique* of the *École doctorale IAEM* of the University of Lorraine and is a member of the *Conseil Scientifique du GdR IM*.  
He was:
  - member of the CoS, poste MCF number 27MCF1087, Université de Lorraine;
  - member of the CoS, poste PR number 25PR1054, Université de Lorraine;
  - member of the CoS, poste MCF number 25MCF4159, Université de Toulon.
- Marine Minier is a member of Collegium of Science et Techniques of Université de Lorraine. She was:
  - president of the CoS, poste PR number 27PR1057, Université de Lorraine;
  - member of the CoS, poste MCF number 27MCF0403, Université de Grenoble;
  - member of the CoS, poste PR number 270001, École Navale de Brest;
  - member of the CoS, poste MCF number 27MCF4111, Université de Bretagne Sud;
- Pierre-Jean Spaenlehauer is a member of the *commission développement technologique* (CDT) of the Inria Nancy Grand-Est research center.
- Emmanuel Thomé
  - is a member of the management committee for the research project “CPER Cyberentreprises” (co-chair).
  - is a member of the *Comité Local Hygiène, Sécurité, et Conditions de Travail* of the Inria Nancy – Grand Est research center.
  - chaired the hiring committee for the junior research positions (CR) at Inria Nancy.
- Marion Videau
  - was a member of the hiring committee for the junior research positions (CR) at Inria Rennes.
- Paul Zimmermann is member of the Scientific Committee of the EXPLOR *Mésocentre*, of the “groupe de réflexion” *Calcul, Codage, Information* of the GDR-IM, of the advisory board of the OpenDreamKit european project, of the scientific council of the LIRMM laboratory in Montpellier.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: Cécile Pierrot, *Programmation avancée en Python - TCSS5AC*, 20 eq. TD, L3, Ecole des Mines, Nancy, France.

Master: Cécile Pierrot, *Introduction à Latex*, 3 eq. TD, M1, Ecole des Mines, Nancy, France.

Licence: Jérémie Detrey, *Sécurité des applications Web*, 2 hours (lecture), L1, Université de Lorraine, IUT Charlemagne, Nancy, France.

Licence, Aurore Guillevic, *Méthodologie de conception et de programmation*, 16 eq. TD (24 TP), L1, Université de Lorraine, Nancy, France.

Formation Continue, Aurore Guillevic, *Introduction à la cryptographie pour enseignants de l'option ISN (informatique et sciences du numérique) en lycée*, 7 eq. TD, Espé de Lorraine (École supérieure du professorat et de l'éducation), Nancy, France.

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

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

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

Master: Marine Minier, *Introduction à la cryptographie*, 18h eq. TD, M1 Informatique, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-les-Nancy, France.

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

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

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

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

### 10.2.2. Supervision

Ph.D.: Simon Abelard, *Comptage de points de courbes algébriques sur les corps finis et interactions avec les systèmes polynomiaux*, Univ. Lorraine. Defended 7 sept 2018, Pierrick Gaudry & Pierre-Jean Spaenlehauer.

PhD: Svyatoslav Covanov, *Algorithmes de multiplication : complexité bilinéaire et méthodes asymptotiquement rapides*, Université de Lorraine. Defended 5 June 2018, Emmanuel Thomé and Jérémie Detrey.

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

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

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

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

PhD in progress: Sandra Rasoamiamanana, *Délivrance de contextes sécurisés par des approches hybrides*, since May 2017, Ph.D. CIFRE Orange Gardens, Marine Minier.

### 10.2.3. Juries

Pierrick Gaudry: reviewer of the PhD thesis: *Arithmetic and geometric structures in cryptography* defended by Benjamin Wesolowski, October 2018, EPFL (Switzerland).

Marine Minier:

- reviewer of the PhD thesis: *Trust evaluation in secure architectures* defended by Jean-Baptiste Orfila, July 2018, Université Grenoble Alpes.
- member of the PhD thesis jury: *Security analysis of contactless communication protocols* defended by David Gérard, November 2018, Université Clermont Auvergne.
- member of the PhD thesis jury: *Cryptanalysis of symmetric key algorithms* defended by Colin Chaigneau, November 2018, Université de Versailles.

## 10.3. Popularization

### 10.3.1. Articles and contents

- *In books/journals for the general public.*  
Paul Zimmermann coordinated (and largely contributed to) the translation into English of the 2013 book *Calcul mathématique avec Sage*. At the same time, the book was updated to a more recent version of the Sage software tool. The resulting book will be published by SIAM at the end of 2018, while an electronic version will remain available under a Creative Commons license [12].
- *For online publications.* Pierrick Gaudry co-authored a blog article about e-voting and the Belenios tool [13].
- *Interviews in order to popularize.* Cécile Pierrot gave a radio interview at France Bleue about being a cryptographer.
- *Videos.* Cécile Pierrot worked with Accustica, a company which promotes popularization. A portrait was created for the exhibition “Les filles, osez les sciences !”<sup>0</sup>. ([video link](#)).

### **10.3.2. Education**

Cécile Pierrot was invited to the exhibition “Les filles, osez les sciences !” to make teachers considers how to deconstruct gender stereotypes in (Computer) Science.

### **10.3.3. Interventions**

Pierrick Gaudry gave a talk about e-voting at the Académie des Sciences.

Emmanuel Thomé gave a talk for students of «classes préparatoires» in Nancy visiting the Inria Nancy research center, on the topic of trapdoored primes in cryptographic standards.

Paul Zimmermann participated in the *Maths-en-jeans* programme, with a class from Lycée Vauban in Luxembourg.

Paul Zimmermann (and Stéphane Glondu from the software development team SED) participated in *Fête de la Science* in October.

Cécile Pierrot co-organized and participated in *Ada Lovelace day*.

Cécile Pierrot gave a talk at Forum de l’Innovation des Armées 2018 about the discrete logarithm problem.

Cécile Pierrot led workshops for secondary-school pupils in Nancy, Reims and Toulouse about research in Computer Science.

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<sup>0</sup>Girls, let’s dare to do science!

## **GAMBLE Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific Events Organisation**

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

Sylvain Lazard organized with S. Whitesides (Victoria University) the **17th Workshop on Computational Geometry** at the Bellairs Research Institute of McGill University in Feb. (1 week workshop on invitation).

Olivier Devillers and Xavier Goaoc co-organized the Aspag Prospective workshop, April 8-12 2018 in Arcachon.

#### *10.1.1.2. Steering Committees*

Monique Teillaud is chairing the Steering Committee of the Symposium on Computational Geometry (SoCG).

### **10.1.2. Scientific Events Selection**

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

Monique Teillaud was a member of the program committee of the European Workshop on Computational Geometry.

#### *10.1.2.2. Reviewer*

All members of the team are regular reviewers for the conferences of our field, namely the *Symposium on Computational Geometry* (SoCG) and the *International Symposium on Symbolic and Algebraic Computation* (ISSAC) and also SODA, CCCG, EuroCG.

### **10.1.3. Journal**

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

Monique Teillaud is a managing editor of JoCG, *Journal of Computational Geometry* and a member of the editorial board of IJCGA, *International Journal of Computational Geometry and Applications*.

Marc Pouget and Monique Teillaud are members of the CGAL editorial board.

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

All members of the team are regular reviewers for the journals of our field, namely *Discrete and Computational Geometry* (DCG), *Computational Geometry. Theory and Applications* (CGTA), *Journal of Computational Geometry* (JoCG), *International Journal on Computational Geometry and Applications* (IJCGA), *Journal on Symbolic Computations* (JSC), *SIAM Journal on Computing* (SICOMP), *Mathematics in Computer Science* (MCS), etc.

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

#### *10.1.4.1. Learned societies*

Monique Teillaud was a member of the Scientific Board of the *Société Informatique de France* (SIF) until July.

### **10.1.5. Research Administration**

#### *10.1.5.1. Hiring committees*

Sylvain Lazard was the laboratory delegate in a prof (PR) hiring committee at Lorraine Univ. (IUT Charlemagne & Loria).

Monique Teillaud chaired the hiring committee for young researchers (CRCN) of Inria Bordeaux - Sud Ouest.

#### 10.1.5.2. National committees

L. Dupont is the secretary of *Commission Pédagogique Nationale Carrières Sociales / Information-Communication / Métiers du Multimédia et de l'Internet*.

M. Teillaud is a member of the working group for the BIL, *Base d'Information des Logiciels* of Inria.

#### 10.1.5.3. Local Committees and Responsibilities

O. Devillers: Elected member to *Pole AM2I* the council that gathers labs in mathematics, computer science, and control theory at *Université de Lorraine*.

L. Dupont: Head of the Bachelor diploma *Licence Professionnelle Animation des Communautés et Réseaux Socionumériques*, Université de Lorraine. Responsible of Fablab of IUT Charlemagne, Université de Lorraine (since 2018, November). Member of *Comité Information Edition Scientifique* of LORIA.

S. Lazard: Head of the PhD and Post-doc hiring committee for Inria Nancy-Grand Est (since 2009). Member of the *Bureau de la mention informatique* of the *École Doctorale IAEM* (since 2009). Head of the *Mission Jeunes Chercheurs* for Inria national. Head of the Department Algo at LORIA (since 2014). Member of the *Conseil Scientifique* of LORIA (since 2014).

G. Moroz: Member of the *Comité des utilisateurs des moyens informatiques*. Member of the CDT, *Commission de développement technologique*, of Inria Nancy - Grand Est.

M. Pouget is elected at the *Comité de centre*, and is secretary of the board of *AGOS-Nancy*.

M. Teillaud joined the *Conseil de Laboratoire* of LORIA in May. She was a member of the BCP, *Bureau du Comité des Projets* of Inria Nancy - Grand Est until end November.

X. Goaoc is a member of the council of the *Fédération Charles Hermite* since sep. 2018.

#### 10.1.5.4. Websites

M. Teillaud is maintaining the Computational Geometry Web Pages <http://www.computational-geometry.org/>, hosted by Inria Nancy - Grand Est. This site offers general interest information for the computational geometry community, in particular the Web proceedings of the Video Review of Computational Geometry, part of the Annual/international Symposium on Computational Geometry.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: Charles Duménil, *Algorithmique et programmation avancée*, 32h, M2, Université de Lorraine, France.

Licence: Laurent Dupont, *Algorithmique*, 15h, L1, Université de Lorraine, France.

Licence: Laurent Dupont, *Web development*, 100h, L2, Université de Lorraine, France.

Licence: Laurent Dupont, *Traitement Numérique du Signal*, 20h, L2, Université de Lorraine, France.

Licence: Laurent Dupont *Web development and Social networks* 100h L3, Université de Lorraine, France.

Licence: Jordan Iordanov, *Algorithmique et Programmation*, 64h, L1, Université de Lorraine, France.

Licence: Jordan Iordanov, *Systèmes de gestion de bases de données*, 20h, L2, Université de Lorraine, France.

Licence: Iordan Iordanov, *Algorithmique et développement web*, 28h, L2, Université de Lorraine, France.

Licence: Iordan Iordanov, *Programmation objet et événementielle*, 16h, L3, Université de Lorraine, France.

Licence: Sylvain Lazard, *Algorithms and Complexity*, 25h, L3, Université de Lorraine, France.

Master: Marc Pouget, *Introduction to computational geometry*, 10.5h, M2, École Nationale Supérieure de Géologie, France.

Licence: Galatée Hemery, *Programmation*, 64h, L3, École des Mines de Nancy, France.

Master: Vincent Despré, *Algorithmique*, 72h, M1, Polytech Nancy, France.

Master: Vincent Despré, *Systèmes distribués*, 20h, M1, Polytech Nancy, France.

Master: Olivier Devillers, *Modèles d'environnements, planification de trajectoires*, 18h, M2 AVR, Université de Lorraine. <https://members.loria.fr/Olivier.Devillers/master/>

Master: Olivier Devillers and Marc Pouget, *Computational Geometry*, 24h (academic year 2018-19), M2 Informatique, ENS Lyon <https://members.loria.fr/Olivier.Devillers/Master2-ENS-Lyon/>.

Master : Xavier Goaoc, *Algorithms and data structures*, 31.5 HETD (academic year 2018-19), M1, École des Mines de Nancy, France

Master : Xavier Goaoc, *Computer architecture*, 31.5 HETD, M1 (academic year 2018-19), École des Mines de Nancy, France

### 10.2.2. Supervision

PhD in progress: Sény Diatta, Complexité du calcul de la topologie d'une courbe dans l'espace et d'une surface, started in Nov. 2014, supervised by Daouda Niang Diatta, Marie-Françoise Roy and Guillaume Moroz.

PhD in progress: Charles Duménil, Probabilistic analysis of geometric structures, started in Oct. 2016, supervised by Olivier Devillers.

PhD in progress: Iordan Iordanov, Triangulations of Hyperbolic Manifolds, started in Jan. 2016, supervised by Monique Teillaud.

PhD in progress: George Krait, Topology of singular curves and surfaces, applications to visualization and robotics, started in Nov. 2017, supervised by Sylvain Lazard, Guillaume Moroz and Marc Pouget.

PhD in progress: Galatée Hemery, Algorithmic and geometric aspects of inclusion-exclusion, started in Sep. 2018, supervised by Xavier Goaoc and Éric Colin de Verdière (UPEM).

PhD in progress: Fernand Kuiebove Pefireko, Simulation of random geometric structures, started in Oct. 2018, supervised by Olivier Devillers.

### 10.2.3. Juries

O. Devillers was the president of the PhD committee of Tuong-Bach Nguyen (Université de Grenoble).

S. Lazard was a reviewer for the HDR of Yukiko Kenmochi (Université de Marnes-la-Vallée).

G. Moroz was a member of the PhD committee of Guillaume Rance (Université Paris-Sud).

## 10.3. Popularization

### 10.3.1. Education

G. Moroz is member of the Mathematics Olympiades committee of the Nancy-Metz academy.

### 10.3.2. Interventions

L. Dupont participated in several events of popularization of computer science:

Math en Jeans, March 30th, popularization of computer science for high-school students.

ISN day, March 22th, adult continuing education of computer science for high-school teachers.

FabLab14, July 13th, popularization of computer science, general audience.

Ada Lovelace Day 2018, october 9 : popularization of computer science for female high-school students.

## MOCQUA Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

- Emmanuel Jeandel organized with three other colleagues the “Jeunes-Chercheurs” school of GDR IM.
- Frédéric Dupuis and Simon Perdrix organized the “Journées informatique quantique” in Nancy, Novembre 2018.
- Nazim Fatès and Irène Marcovici organised a “**Journée Charles Hermite**” on the theme "Cellular automata and dynamics on networks" (Nancy, Decembre 2018).

#### 9.1.1.2. Member of the Organizing Committees

- Mathieu Hoyrup is member of the Steering Committee of the Conference Series *Computability in Europe* (CiE) for the period 2017-2021.
- Simon Perdrix is in the Scientific Board of the Colloquium IQFA (Montpellier, Novembre 2018).
- Nazim Fatès is a member of the steering committee of the Summer Solstice Conference on Discrete Models of Complex Systems.

### 9.1.2. Scientific Events Selection

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

- Mathieu Hoyrup was PC member of the workshop Continuity, Computability, Constructivity - From Logic to Algorithms (CCC) 2018, Faro, September 2018.
- Emmanuel Jeandel and Simon Perdrix were PC members of MCU 2018 (<https://mcu2018.lacl.fr/>).
- Romain Péchoux was PC member of the workshop DICE 2018 (<http://cl-informatik.uibk.ac.at/users/zini/events/dice18/>).
- Frédéric Dupuis was PC member of QCrypt 2018 (<http://2018.qcrypt.net/>) and QIP 2019 (<http://jila.colorado.edu/qip2019/>).
- Nazim Fatès was a PC member of **Automata 2018** and **ACRI 2018**.

#### 9.1.2.2. Reviewer

- Mathieu Hoyrup reviewed articles for LICS, CiE and ICALP.
- Romain Péchoux reviewed articles for DICE, ISMVL and CSL.
- Frédéric Dupuis reviewed articles for QCrypt 2018, QIP 2019, CRYPTO 2018, and AQIS 2018.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

- Emmanuel Jeandel is member of the editorial board of RAIRO-ITA (Revue d'Automatique, d'Informatique et de Recherche Opérationnelle: Informatique théorique et applications).
- Romain Péchoux is guest editor for a Theoretical Computer Science special issue on Implicit Computational Complexity (<https://www.journals.elsevier.com/theoretical-computer-science/call-for-papers/mplicit-computational-complexity>).
- Nazim Fatès is a member of the editorial board of the *Journal of cellular automata*.

#### 9.1.3.2. Reviewer - Reviewing Activities

- Mathieu Hoyrup reviewed articles for Discrete and Continuous Dynamical Systems, Information and Computation, and Theoretical Computer Science.
- Romain Péchoux reviewed articles for Information Processing Letters, Journal of Automated Reasoning and Theoretical Computer Science.
- Frédéric Dupuis reviewed articles for Nature Communications, Quantum, IEEE Transactions on Information Theory, Physical Review A, Journal of Physics A, and the Journal of Mathematical Physics.
- Nazim Fatès reviewed articles on cellular automata for the *Journal of cellular automata*, *Physical Review A*, *Chaos, Solitons & Fractals* and *Informatica*.

#### 9.1.4. Invited Talks

- Mathieu Hoyrup was invited to give a talk at the special session Continuous Computation at CiE 2018.
- Nazim Fatès was invited to give a talk on artificial intelligence in the “Colloque Cathy Dufour 2018” held in Nancy in November 2018.

#### 9.1.5. Scientific Expertise

- Romain Péchoux was expert for the European Commission H2020 Marie Skłodowska-Curie Individual Fellowships.
- Nazim Fatès served as an expert for the Chilean national institute of research CONICYT.

#### 9.1.6. Research Administration

- Simon Perdrix is the Scientific Secretary of the CoNRS Section 6. He was in the panel of the CR and DR recruitments at CNRS section 6.
- Frédéric Dupuis is on the board of the Fédération Charles-Hermite (Université de Lorraine).
- Emmanuel Hainry is a member of the CNU Section 27.
- Nazim Fatès is the vice-chair of the IFIP Working group 1.5 on cellular automata and discrete complex systems.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Licence
  - Isabelle Gnaedig:
    - \* To the limits of the computable, 6 hours, Opening course-conference of the collegium “Lorraine INP”, Nancy, France
  - Emmanuel Hainry:
    - \* Operating Systems, 30h, L1, IUT Nancy Brabois
    - \* Algorithmics, 40h, L1, IUT Nancy Brabois
    - \* Dynamic Web, 60h, L1, IUT Nancy Brabois
    - \* Databases, 30h, L1, IUT Nancy Brabois
    - \* Object Oriented Languages, 16h, L2, IUT Nancy Brabois
    - \* Complexity, 30h, L2, IUT Nancy Brabois
  - Mathieu Hoyrup:
    - \* Bases de la Programmation Orientée Objet, 20 HETD, L2, Université de Lorraine, France
    - \* Interfaces Graphiques, 10 HETD, L2, Université de Lorraine, France



- Emmanuel Jeandel:
  - \* Algorithmics and Programming 1, 60h, L1 Maths-Info
  - \* Data Compression, 30h, L2 Informatique
  - \* Algorithmics and Programming 4, 30h, L3 Informatique
  - \* Modeling Using Graph Theory, 30h, L3 Informatique
  - \* Networking, 15h, L3 Informatique
  - \* Formal Languages, 30h, L3 Informatique
- Romain Péchoux:
  - \* Programmation orientée objet, 61,5h, L3 MIASHS
  - \* Programmation orientée objet, 53,5h, L2 MIASHS
  - \* Outils logiques pour l’informatique, 35h, L1 MIASHS
  - \* Bases de données, 40h, L3 Sciences de la Gestion
  - \* Algorithmic complexity, 30h, L3 MIAGE, IGA Rabat, Morocco.
- Master
  - Isabelle Gnaedig:
    - \* Design of Safe Software, Coordination of the module, M2, Telecom-Nancy (Université de Lorraine), Nancy, France,
    - \* Rule-based Programming, 20 hours, M2, Telecom-Nancy (Université de Lorraine), Nancy, France.
  - Emmanuel Jeandel:
    - \* Algorithmics and Complexity, 30h, M1 Informatique
  - Nazim Fatès:
    - \* Systèmes distribués adaptatifs, 10h, Master 2, informatique.
    - \* Agents intelligents et collectifs, 15h, Master 1, sciences cognitives.

### 9.2.2. Supervision

- PhD in progress: Renaud Vilmart, “Langages graphiques pour calculer et raisonner en quantique”, Start: October 2016, Advisors: Emmanuel Jeandel and Simon Perdrix.
- PhD in progress: Titouan Carette, “Langage diagrammatique pour l’ordinateur quantique”, Start: October 2018, Advisors: Emmanuel Jeandel and Simon Perdrix.
- PhD in progress: Pierre Mercuriali, “Calcul à base de médiane et structures médianes pour la classification”, Start: October 2016, Advisors: Miguel Couceiro and Romain Péchoux.
- PhD in progress: Robert Booth, “Formalismes pour la vérification de technologies quantiques”, Start: November 2018, Advisors: Damian Markham and Simon Perdrix.

### 9.2.3. Juries

- Emmanuel Jeandel reviewed the PhD thesis of Silvère Gangloff (Aix-Marseille Université - Université Toulouse III).
- Simon Perdrix was examiner for the PhD thesis of Alex Bredariol Grilo (IRIF, Université Paris Diderot), April 27 2018.
- Frédéric Dupuis was examiner for the PhD thesis of Christoph Hirche (Universitat Autònoma de Barcelona), May 9, 2018.

## 9.3. Popularization

### 9.3.1. Articles and contents

Nazim Fatès and Irène Marcovici presented an article on cellular automata in the wide audience scientific magazine *La recherche* [23]. This article appeared in an issue dedicated to “chaos and complexity” (July-August 2018).

Simon Perdrix has been one of the editors of the ERCIM news special issue on Quantum Computing.

### 9.3.2. Education

Nazim Fatès participated in a day of training destined to high school teachers of the “Académie de Poitiers” with a conference and discussions with the participants. The meeting was held on April 25, 2018, in the Lycée Victor Hugo of Poitiers and was also followed on the internet by teachers located abroad (DOM-TOM).

### 9.3.3. Interventions

Nazim Fatès participated to a debate for a large public on the theme "Space and artificial intelligence" in the Cité des sciences et de l'industrie in Paris. This debate was part of a series of events dedicated to celebrations of the fiftieth year of the film *2001, A space Odyssey*.

Nazim Fatès joined the **Pariscience Festival** for animating a debate on artificial intelligence with high-school students of the region of Paris. The discussion, held together with a researcher from the INSERM institute, followed the projection of the film *IA : votre nouveau cerveau* and a **collective game** to debate on the question of artificial intelligence.

Nazim Fatès participated in an open debate on the theme: “**L’intelligence artificielle, quel avenir pour les artistes et créateurs d’aujourd’hui ?**”. This debate was held in conjunction with the RING Theater Festival in Nancy (Rencontres Internationales des Nouvelles Générations) in April 2018.

Nazim Fatès participated in an open debate on the general theme of joining science and art in conjunction with the exposition “**Retina Pictonique**” which was held in July 2018 in Toulouse in the CEMES Laboratory.

Nazim Fatès participated in an open debate on the theme “**L’intelligence artificielle est-elle vraiment maligne ?**” in the Shadok fab-lab of Strasbourg. The debate gathered more than a hundred persons and was preceded by an **interview** in the magazine *Rue 89 Strasbourg*.

### 9.3.4. Internal action

Nazim Fatès gave a talk on artificial intelligence in the *Café-In* meeting, one of the Inria Nancy Grand-Est series of talks destined to all the employees of the laboratory (March 13, 2018).

Frédéric Dupuis also gave a *Café-In* talk on quantum computing (February 13, 2018).

## **PESTO Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific Events Organisation***

#### *10.1.1.1. General Chair, Scientific Chair*

- J. Dreier: GRSRD 2018, Grande Region Security and Reliability Day 2018, Saarbrücken, March 2018 (co-chair with C. Rossow, CISPA, Germany)
- A. Imine: German-French PhD Workshop on Secure Big Data, October 24-26, 2018, Saarland, Germany (co-chair with S. Strohbach and Y. Zhang)

### ***10.1.2. Scientific Events Selection***

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

- V. Cortier: POST 2018, E-VoteID 2018 (Track chair), CCS 2018, POST 2019, E-VoteID 2019 (Track chair), S&P 2019, CSF 2019
- A. Imine : DEXA 2018, SpaCCS 2018, TSP 2018, VLIoT@VLDB 2018, ICEIS 2019, DEXA 2019, VLIoT@VLDB 2019, C2SI 2019
- S. Kremer: Voting 2018, EuroS&P 2018, ESORICS 2018, EuroS&P 2019, Voting 2019, PERR 2019
- C. Ringeissen: IJCAR 2018, UNIF 2018, WRLA 2018, UNIF 2019, FroCoS 2019
- M. Rusinowitch: ICISSP 2018, IWSPA 2018, FPS 2018, CRISIS 2018

### ***10.1.3. Journal***

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

- V. Cortier: Information & Computation, Journal of Computer Security, ACM Transactions on Privacy and Security (TOPS, previously TISSEC), Foundations and Trends (FnT) in Security and Privacy
- S. Kremer: ERCIM News
- L. Vigneron: Technique et Sciences Informatiques, Lavoisier

### ***10.1.4. Invited Talks***

- V. Cortier. Keynote speaker of the 13th International Federated Conference on Distributed Computing Techniques (DisCoTec 2018), Madrid, Spain, June 2018.
- V. Cortier. Invited speaker at the Science and Society conferences, Nancy, May 15th, 2018.
- V. Cheval. Invited speaker at the African Conference on Research in Computer Science and Applied Mathematics (CARI 2018), Stellenbosch, South Africa, October 2018.

### ***10.1.5. Scientific Expertise***

ANR project expertise (A. Imine)

### ***10.1.6. Research Administration***

Inria evaluation committee (S. Kremer)

Inria Committee on Gender Equality and Equal Opportunities (S. Kremer, co-chair)

Jury Junior Research Position Inria Rennes-Bretagne Atlantique (S. Kremer)

Jury Senior Research Position Inria (S. Kremer)

Jury Professor at Univ Lorraine, LORIA (S. Kremer)

Computer science commission of the Doctoral School, Univ Lorraine (L. Vigneron, chair)

Scientific Council of the Computer Science CNRS Institute INS2I (V. Cortier)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Licence:
  - J. Dreier, Introduction to Theoretical Computer Science (Logic, Languages, Automata), 146 hours (ETD), TELECOM Nancy
  - J. Dreier, Awareness for Cybersecurity, 7.5 hours (ETD), TELECOM Nancy
- Master:
  - V. Cortier, Security of flows, 16 hours, M2 Computer Science, TELECOM Nancy and Mines Nancy
  - J. Dreier, Introduction to Cryptography, 42 hours, M1 Computer Science, TELECOM Nancy
  - A. Imine, Security for XML Documents, 12 hours (ETD), M1, Univ Lorraine
  - S. Kremer, Security Theory, 24 hours (ETD), M2 Computer science, Univ Lorraine
  - C. Ringeissen, Decision Procedures for Software Verification, 18 hours (ETD), M2 Computer science, Univ Lorraine
  - L. Vigneron, Security of information systems, 32 hours (ETD), M2 Computer science, Univ Lorraine
  - L. Vigneron, Security of information systems, 24 hours (ETD), M2 MIAGE – Distributed Information Systems, Univ Lorraine
  - L. Vigneron, Security of information systems, 16 hours (ETD), M2 MIAGE – Audit and Design of Information Systems, Univ Lorraine
- Summer School:
  - J. Dreier, Symbolic verification of cryptographic protocols using Tamarin, 8 hours, 23rd Estonian Winter School in Computer Science (EWSCS), Palmse, Estonia
  - V. Cheval. Verification of Security Protocols: From Confidentiality to Privacy, 4 hours, School organized within the 15th International Colloquium on Theoretical Aspects of Computing (ICTAC 2018), Stellenbosch, South Africa
  - V. Cheval. Verification of Cryptographic Protocols, 2h30, 13th Summer School on Modelling and Verification of Parallel Processes (MOVEP 2018), Cachan, France

### 10.2.2. Supervision

- PhD defended in 2018:
  - Antoine Dallon, Decision procedures for equivalence properties, November 26th, 2018 (V. Cortier and S. Delaune)
  - Younes Abid, Automated Risk Analysis on Privacy in Social Networks, July 5th, 2018 (M. Rusi-nowitch)
  - Alicia Filipiak, Conception and formal analysis of security protocols - one application to electronic voting and mobile paiement, March 23rd, 2018 (V. Cortier)
  - Ludovic Robin, Vérification formelle de protocoles basés sur de courtes chaines authentifiées, February 15th, 2018 (S. Delaune and S. Kremer)

- PhD in progress:
  - Ahmad Abboud, Compressed and Verifiable Filtering Rules in Software-defined Networking, started in August 2018 (A. Lahmadi, M. Rusinowitch and A. Bouhoula)
  - Bizhan Alipour, Privacy protection against inference attacks in social networks, started in October 2018 (A. Imine, M. Rusinowitch)
  - Charlie Jacomme, Security protocols: new properties, new attackers, new protocols, started in September 2017 (H. Comon and S. Kremer)
  - Joseph Lallemand, Type systems for equivalence properties, started in September 2016 (V. Cortier)
  - Itsaka Rakotonirina, Efficient verification of equivalence properties in cryptographic protocols, started in October 2017 (V. Cheval and S. Kremer)

### 10.2.3. *Juries*

- Reviewer for Jonathan Hoyland PhD, Royal Holloway, UK (V. Cortier)
- Reviewer for Jean-Karim Zinzindohoué PhD, ENS Paris (V. Cortier)
- Reviewer for Nicolás Sebastián Gálvez Ramírez PhD, Univ Angers and UTFSM, Valparaíso (C. Ringeissen)
- Reviewer for Vaishnavi Sundararajan PhD, Chennai (M. Rusinowitch)

## 10.3. Popularization

### 10.3.1. *Articles and contents*

- (a voté) Euh non : a cliqué. V. Cortier, P. Gaudry, and S. Glondou. In Blog Binaire, Le Monde, March 2018 [42]
- Interview for *Jeune Afrique* on electronic voting (V. Cortier).
- Multiple interviews and articles on 5G security (*Est Républicain*, *CNRS Le Journal*, *The Conversation*, *Univers Freebox*, ...) (J. Dreier).
- Interview for *News Tank RH* on electronic voting (S. Kremer).
- Interview for *AFP* on electronic voting (S. Kremer).
- Si c'est gratuit, C'est toi le produit. Université Participative de Vandoeuvre. *Est Républicain* (A. Imine).
- Report on risks related to personal data disclosure. Equipe de L'Esprit Sorcier, February, (A. Imine).

### 10.3.2. *Interventions*

- Presentation of security protocols to high school teachers in Computer Science, April 17th, 2018 (V. Cortier).
- How to explain security protocols with Playmobil, Ada Lovelace Day, October 9th, 2018, (V. Cortier)

## VERIDIS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Organization of Scientific Events

Jasmin Blanchette co-organized the first *Verification and Deduction Mentoring Workshop* (VDMW 2018) as part of the Federated Logic Conferences (FLoC 2018) in Oxford, UK. He also coorganized two workshops at VU Amsterdam: the First European Workshop on *Higher-Order Automated Reasoning* (Matryoshka 2018) and the Fourth International *Workshop on Automated (Co)inductive Theorem Proving* (WAIT 2018).

Igor Konnov and Stephan Merz were organizers of the fifth *Workshop on Formal Reasoning in Distributed Algorithms* (FRIDA 2018) as part of the Federated Logic Conference (FLoC 2018) in Oxford, UK.

Stephan Merz was the main organizer of the TLA<sup>+</sup> Community Meeting as part of the Federated Logic Conference (FLoC 2018) in Oxford, UK.

Thomas Sturm co-organized two international interdisciplinary workshops on *Symbolic Methods for Biological Networks* at the University of Bonn, Germany.

The International Summer School on Verification Techniques, Systems, and Applications (VTSA) has been organized since 2008 in the Greater Region (Nancy, Saarbrücken, Luxembourg, Liège, and Koblenz), and Stephan Merz and Christoph Weidenbach are co-organizers of VTSA. In 2018, VTSA took place in August in Nancy, France.

### 9.1.2. Program Committees

#### 9.1.2.1. Chair of Conference Program Committees

Igor Konnov served as a chair of the *Artifact Evaluation Committee* at *Computer-Aided Verification* (CAV 2018).

Dominique Méry was a co-chair of the program committee of the 8th International Conference on Model and Data Engineering (MEDI 2018), organized in Marrakesh, Morocco, in October 2018.

Uwe Waldmann co-chaired the program committee of *Deduktionstreffen 2018*, the annual meeting of the Interest Group for Deduction Systems (FGDedSys) of the AI Chapter of the German Society of Informatics.

#### 9.1.2.2. Member of Conference Program Committees

Jasmin Blanchette served on the program committees of the *NASA Formal Methods Symposium* (NFM 2018), the *Conference on Computer-Aided Verification* (CAV 2018), the *International Conference on Tests and Proofs* (TAP 2018), the *International Joint Conference on Automated Reasoning* (IJCAR 2018), the *International Conference on Interactive Theorem Proving* (ITP 2018), the *ACM SIGPLAN International Conference on Certified Programs and Proofs* (CPP 2018), and the *Conference on Artificial Intelligence and Theorem Proving* (AITP 2018). He also served on the workshop committees for the *International Workshop on the Implementation of Logics* (IWIL 2018) and the *Deduktionstreffen 2018*.

Pascal Fontaine served on the program committees of the *International Joint Conference on Automated Reasoning* (IJCAR 2018), the *International Workshop on the Implementation of Logics* (IWIL 2018), the *International Workshop on Practical Aspects of Automated Reasoning* (PAAR 2018), the *Satisfiability Checking and Symbolic Computation Workshop* (SC-Square 2018).

Igor Konnov served on the program committees of *ACM Symposium on Principles of Distributed Computing* (PODC 2018), *Formal Methods in Computer-Aided Design* (FMCAD 2018), *International Conference on Verification and Evaluation of Computer and Communication Systems* (VECoS 2018), *International Symposium on Formal Approaches to Parallel and Distributed Systems* (4PAD 2018), *Workshop on Methods and Tools for Rigorous System Design* (MeTRiD 2018), and *Workshop on Program Semantics, Specification, and Verification* (PSSV 2018).

Dominique Méry served on the program committees of the *International Conference on Engineering of Complex Computer Systems* (ICECCS 2018), the *International Symposium on Formal Methods* (FM 2018), the *International Conference on Formal Engineering Methods* (ICFEM 2018), the *International Conference on Integrated Formal Methods* (iFM 2018), the *International Conference on ASM, Alloy, B, TLA, VDM and Z* (ABZ 2018), the *Workshop on Formal Methods for Interactive Systems* (FMIS 2018), the *Workshop in Formal Models for Mastering Multifaceted Systems* (REMEDY 2018), the *Workshop on Formal Approaches for Advanced Computing Systems* (FAACS 2018), and the *Workshop on Software Engineering in Healthcare Systems* (SEHS 2018).

Stephan Merz served on the program committees of the *International Conference on ASM, Alloy, B, TLA, VDM and Z* (ABZ), the *International Conference on Formal Methods for Industrial Critical Systems* (FMICS), the *International Conference on Formal Engineering Methods* (ICFEM), the *International Symposium on Dependable Software Engineering: Theories, Tools, and Applications* (SETTA), the *International Workshop on Automated Verification of Critical Systems* (AVoCS), and the *International Workshop about Sets and Tools* (SETS).

Sorin Stratulat served on the program committees of the *International Symposium on Symbolic and Numeric Algorithms for Scientific Computing* (SYNASC 2018), the *International Conference on Information Assurance and Security* (IAS 2018), and the *International Conference on Computational Intelligence in Security for Information Systems* (CISIS 2018).

Thomas Sturm served on the program committees of *Automated Deduction in Geometry* (ADG 2018), *Computer Algebra in Scientific Computation* (CASC 2018), the *International Joint Conference on Automated Reasoning* (IJCAR 2018), the *Satisfiability Modulo Theories Workshop* (SMT 2018), the *Satisfiability Checking and Symbolic Computation Workshop* (SC-Square 2018).

Uwe Waldmann served on the program committee of the *International Joint Conference on Automated Reasoning* (IJCAR 2018).

Christoph Weidenbach served on the program committee of the *International Joint Conference on Automated Reasoning* (IJCAR 2018) and the senior program committee of *International Joint Conference on Artificial Intelligence* (IJCAI 2018).

### 9.1.3. Journals

#### 9.1.3.1. Member of Editorial Boards

Jasmin Blanchette and Stephan Merz served as guest editors for the special issue on *Interactive Theorem Proving* (ITP 2016) of the *Journal of Automated Reasoning*.

Dominique Méry is Book Reviews Editor for *Formal Aspects of Computing*.

Thomas Sturm is an editor of the *Journal of Symbolic Computation* (Elsevier) since 2003 and an editor of *Mathematics in Computer Science* (Springer) since 2013.

Christoph Weidenbach is a member of the editorial board of the *Journal of Automated Reasoning* (Springer). He also served as an editor on the special issue on *Automated Reasoning Systems* of JAR.

### 9.1.4. Invited Talks

Jasmin Blanchette was invited to give a seminar talk at the University of Edinburgh on the IsaFoL (Isabelle Formalization of Logic) project.

Marie Duflot-Kremer was an invited speaker at EduCode 2018 in Brussels, Belgium, where she presented the Class'Code project.

Pascal Fontaine was an invited speaker at Deduktionstreffen 2018 in Luxembourg. He was an invited lecturer at the EPIT 2018 Software Verification Spring School in Aussois, France and at the SAT-SMT-AR school 2018 in Manchester, UK.

Igor Konnov was invited to give a tutorial at the Dagstuhl Seminar 18211 “Formal Methods and Fault-Tolerant Distributed Computing: Forging an Alliance” in Dagstuhl, Germany. He was also invited to give talks at the Workshop on Verification of Distributed Systems, Essaouira, Morocco, and Helmut Veith Memorial Workshop in Obertauern, Austria. Furthermore, he gave a talk (together with Josef Widder) on one of the research highlights of the RISE project at Alpine Verification Meeting in Wagrain, Austria.

Stephan Merz was invited to give a seminar talk at EPFL Lausanne on the use of auxiliary variables for proving refinement between  $TLA^+$  specifications.

Thomas Sturm was an invited speaker at ISSAC 2018 in New York. He was furthermore invited to give a lecture at the graduate school for mathematics at RWTH Aachen University, Germany, and a seminar talk at Johannes Kepler University Linz, Austria.

Uwe Waldmann was invited to give a tutorial on Saturation Theorem Proving at the SAT/SMT/AR Summer School 2018 in Manchester, UK.

Christoph Weidenbach gave an invited talk on Robust Automated Reasoning at the 2018 Innsbruck Symposium on Integration of Automated Deduction and Interactive Theorem Proving.

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

Jasmin Blanchette is a regular member of the CADE (*Conference on Automated Deduction*) Inc. Board of Trustees. He is also a regular member of the steering committees for the ITP (*Interactive Theorem Proving*) and TAP (*Tests and Proofs*) conference series.

Marie Duflot-Kremer is an elected member of the council of SIF, the French association for computer science.

Pascal Fontaine is an SMT-LIB manager, together with Clark Barrett (Stanford University) and Cesare Tinelli (University of Iowa). He is a regular member of steering committees for the FroCoS (*Frontiers of Combining Systems*) conference series, and for the SC-Square (*Satisfiability Checking and Symbolic Computation*) workshop series. He is ex-officio member of the CADE (*Conference on Automated Deduction*) Inc. Board of Trustees. He is an elected member of the steering committee for the SMT (*Satisfiability Modulo Theories*) workshop series.

Stephan Merz is a member of the IFIP Working Group 2.2 on *Formal Description of Programming Concepts*, a member of the committee for the SIF thesis award (*Prix Gilles Kahn*), and a member of the steering committee of the workshop on Automated Verification of Critical Systems (AVoCS).

Thomas Sturm is a member at large of the steering committee of the ACM conference series *International Symposium on Symbolic and Algebraic Computation (ISSAC)*.

Christoph Weidenbach is the president of CADE and a member of the steering committee of IJCAR.

### **9.1.6. Scientific Expertise**

Dominique Méry and Stephan Merz served as experts for ANR, the French national research agency.

Christoph Weidenbach served as an expert for the German Science Foundation (DFG).

### **9.1.7. Research Administration**

Marie Duflot-Kremer is an elected member of the council of LORIA. She was a member of the hiring committee for an associate professor at Université Paris-Est-Créteil.



Stephan Merz is the delegate for scientific affairs at the Inria Nancy – Grand Est research center and a member of Inria’s Evaluation Committee. In 2018, he was a member of the hiring committees of senior researchers at Inria and of junior researchers at Inria Paris. He is also a member of the *bureau* of the computer science committee of the doctoral school IAEM Lorraine and of the executive committee of the project on citizens’ trust in the digital world (DigiTrust) funded by *Lorraine Université d’Excellence*.

Uwe Waldmann is a member of the admissions committee for scholarships of the International Max-Planck Research School for students aiming at a master’s degree.

Christoph Weidenbach is a member of the selection committee of the Saarbrücken Graduate School in Computer Science.

## 9.2. Teaching, Supervision, PhD Committees

### 9.2.1. Teaching

Licence: Marie Duflot-Kremer is the head of the first year for computer science students at the Faculty for Science and Technology of Université de Lorraine.

Licence: Marie Duflot-Kremer, Algorithmique et Programmation 1, 60 HETD L1 Mathématiques, Informatiques, Sciences pour l’Ingénieur, Université de Lorraine, France.

Licence: Marie Duflot-Kremer, Introduction au Web, 30 HETD L1 Mathématiques, Informatiques, Sciences pour l’Ingénieur, Université de Lorraine, France.

Licence: Marie Duflot-Kremer, Méthodologie du Travail Universitaire, 24 HETD, L1 Informatique, Université de Lorraine, France.

Licence: Marie Duflot-Kremer, Bases de données 2, 20 HETD, L2 Informatique, Université de Lorraine, France.

Licence: Marie Duflot-Kremer, Programmation Web, 10 HETD, L3 Informatique, Université de Lorraine, France.

Licence: Pascal Fontaine, Structure des ordinateurs, 47 HETD, L2 MIASHS, parcours MIAGE, Université de Lorraine, France.

Licence: Sorin Stratulat, Bases de données, 32 HETD, L1, ISFATES, France.

Master: Jasmin Blanchette, Logical Verification, 36 HETD, M1/M2, Vrije Universiteit Amsterdam, the Netherlands.

Master: Marie Duflot-Kremer, Vérification de systèmes, 30 HETD, M1 Informatique, Université de Lorraine, France.

Master: Marie Duflot-Kremer and Stephan Merz, Elements of model checking, 40 HETD, M2 Informatique and Master Erasmus Mundus DESEM, Université de Lorraine, France.

Master: Marie Duflot-Kremer and Stephan Merz, Conception et architectures distribuées, 24 HETD M1 informatique, Université de Lorraine, France.

Master: Pascal Fontaine, Réseaux, 50 HETD, M1 MIAGE, Université de Lorraine, France.

Master: Pascal Fontaine is the head of the MIAGE degree at Université de Lorraine.

Master: Dominique Méry, Models and algorithms, 60 HETD, M1, Telecom Nancy, Université de Lorraine, France.

Master: Dominique Méry, Formal model engineering, 24 HETD, M2, Telecom Nancy, Université de Lorraine, France.

Master: Dominique Méry, Modeling Systems, 30 HETD, M2, Telecom Nancy, Université de Lorraine, France.

Master: Dominique Méry, Modeling Systems, 36 HETD, M2 Informatique and Master Erasmus Mundus DESEM, Université de Lorraine, France.

Master: Dominique Méry, Event-B modeling, 8 HETD, NUI Maynooth, Ireland.

Master: Sorin Stratulat, Analyse et conception de logiciels, 105.5 HETD, M1 Informatique, Université de Lorraine, France.

Master: Sorin Stratulat, Génie Logiciel, 30 HETD, M2 Informatique, Université de Lorraine, France.

Master: Uwe Waldmann, Automated Reasoning I, 90 HETD, Universität des Saarlandes, Germany.

Master: Sophie Turret and Uwe Waldmann, Automated Reasoning II, 60 HETD, Universität des Saarlandes, Germany.

### 9.2.2. Supervision

HdR: Pascal Fontaine, Satisfiability Modulo Theories, Université de Lorraine, 8 October 2018.

PhD: Souad Kherroubi, Un cadre formel pour l'intégration de connaissances du domaine dans la conception des systèmes: Application au formalisme Event-B, Université de Lorraine, 21 December 2018. Supervised by Dominique Méry.

PhD: Andreas Teucke, *An Approximation and Refinement Approach to First-Order Automated Reasoning*, Saarland University. Supervised by Christoph Weidenbach, defended in May 2018.

PhD in progress: Martin Bromberger, Arithmetic Reasoning, Saarland University. Supervised by Thomas Sturm and Christoph Weidenbach, since July 2014.

PhD in progress: Margaux Duroeux, SAT Techniques for Reliability Assessment, Université de Lorraine. Supervised by Nicolae Brânzei, Marie Duflot-Kremer, and Stephan Merz, since October 2016.

PhD in progress: Daniel El Ouraoui, Higher-Order SMT, Université de Lorraine. Supervised by Jasmin Blanchette, Pascal Fontaine, and Stephan Merz, since November 2017.

PhD in progress: Mathias Fleury, Formalization of Logical Calculi, Saarland University. Supervised by Christoph Weidenbach and Jasmin Blanchette, since September 2015.

PhD in progress: Alexis Grall, Integration of a modeling language and a language for programming distributed systems, Université de Lorraine. Supervised by Horatiu Cirstea and Dominique Méry, since October 2018.

PhD in progress: Nicolas Schnepf, Orchestration and Verification of Security Functions for Smart Environments, Université de Lorraine. Supervised by Rémi Badonnel, Abdelkader Lahmadi, and Stephan Merz, since October 2016.

PhD in progress: Hans-Jörg Schurr, Higher-Order SMT, Université de Lorraine. Supervised by Jasmin Blanchette, Pascal Fontaine, and Stephan Merz, since November 2017.

PhD in progress: Marco Voigt, Decidable Hierarchic Combinations, Saarland University. Supervised by Thomas Sturm and Christoph Weidenbach, since November 2013.

Jasmin Blanchette supervises two PhD students at VU Amsterdam and was a supervisor of Anders Schlichtkrull at TU Denmark, who defended in 2018. Igor Konnov co-supervises three PhD students at TU Wien. These PhD students are not members of VeriDis.

### 9.2.3. Thesis committees

Pascal Fontaine served as a reviewer in the thesis committees for Ahmed Irfan at Fondazione Bruno Kessler and University of Trento, Italy, for Vu Xuan Tung at JAIST, Japan, and for Mèton Mèton Atindehou at Université Catholique de Louvain (UCL), Belgium.

Stephan Merz served as a reviewer for the PhD theses of Bin Fang (Univ. Paris Diderot and East China Normal University) and Hai Nguyen Van (Univ. Paris Saclay). He was an examiner for the PhD committees of Evgeny Kotelnikov (Chalmers Univ.) and for the habilitation thesis of Nikolai Kosmatov (CEA Saclay).

Thomas Sturm served as a reviewer in the thesis committee for Ulrich Loup at RWTH Aachen University, Germany.

## **9.3. Popularization**

### **9.3.1. Articles and Contents**

In addition to the creation of unplugged computer science activities, Marie Duflot-Kremer produces documents to help others, together with videos already produced in collaboration with Inria, master and practise on their own those activities.

An article was accepted at the Educode conference on the analysis of unplugged vs. computer based programming learning [32].

### **9.3.2. Education**

Marie Duflot-Kremer is involved in various training activities for high school teachers. She is involved in two IREM (Institute for Research on Mathematics Education) groups that produced a training session, she gave workshops in the regional APMEP (Association of Math Teachers from Public Education) day and during the “Journée ISN” (organized for teachers involved in computer science courses in high school). She also gave a conference talk and a workshop on a one day training session for teachers at the Science Museum “Le Vaisseau” in Strasbourg.

Thomas Sturm and Christoph Weidenbach co-organized the scientific track of the training program of the German team for the International Olympiad in Informatics (IOI).

### **9.3.3. Interventions**

Marie Duflot-Kremer is involved in many outreach events where computer science is shared with a very wide audience, from 3 to 80+ years old, including “Journée des cordées de la réussite” and “Journée d’immersion” (for high school students), Fête de La Science (locally and in Paris with Inria including a theater play performed at Cité des Sciences), Math en Jeans (a program where high school students discover research through simple mathematics or computer science problems).

She gave a two-day seminar at Université Paris Nanterre to Law teachers presenting computer networks and computer security, and a talk at the “Journée GDR IA” to show to AI researchers how to present their research to a wide audience through unplugged activities.

Marie Duflot-Kremer was also one of the trainers at a three-day summer school on computer science outreach held by Société Informatique de France. During these three days the trainees discovered the concept, practised existing activities and even created their own (on subject as diverse as information leakage, Turing machines or binary integer encoding).

Concerning events organized by Inria, she took part in the Ada Lovelace Day organized by Inria Nancy – Grand Est (NGE), on three aspects: organization of the day (both scientific and practical), training of colleagues prior to the event, and supervising workshops during the event. She is also part of the FAN (Formation des Ambassadeurs du Numérique) project organised by Inria NGE and “Les Petits Débrouillards” that will, in addition to the Class’Code MOOC, train people involved in education (in school or outside) through 5 days of training seminar. She also took part in two events related to Class’Code in Bordeaux (May) and Poitiers (November), introducing the motivations of unplugged activities and their practical aspects in workshops.

### **9.3.4. Internal Action**

Marie Duflot-Kremer is part of the “Info Sans Ordi” group affiliated to Société Informatique de France, where people share and design new unplugged activities to introduce computer science concepts.

### **9.3.5. Creation of Media or Tools for Science Outreach**

Marie Duflot-Kremer and the Inria media team recorded three new videos presenting unplugged activities, that complement the 10 videos already existing and available on the Pixees Youtube account. She is a member of the GT7F working group (led by Interstice/Inria) that has produced a card game presenting important computer science figures (to be released in early 2019).

## SPHINX Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### 9.1.1. Scientific Events Organisation

##### 9.1.1.1. General Chair, Scientific Chair

"rQUACO" is the first meeting funded by the ANR QUACO. This 3 days workshop of quantum control gathers 25 physicists and mathematicians in September in Besançon and was co-organized by N. Boussaïd (UBFC Besançon), T. Chambrion (U. Lorraine) and S. Sugny (UBFC Dijon).

##### 9.1.1.2. Member of the Organizing Committees

- Xavier Antoine was a member of the scientific committee of ECT2018, The 10<sup>th</sup> International Conference on Engineering Computational Technology, Barcelona, Spain, 4–6 September 2018. He was also a co-organiser of the workshop on Mathematical and Computational Methods for Quantum Systems, CRM Montréal, 11-14th December 2018.
- Thomas Chambrion was a member of the organizing committee of rQUACO, which took place under the framework of the ANR QUACO;
- David Dos Santos Ferreira was a co-organizer (with Laurent Thomann) of the "Journées EDP" (Obernai, June 2018);
- Julien Lequeur and Alexandre Munnier were co-organizers of the JEF "Journées Jeunes Edpistes" (Mars 2018, Nancy <https://jef18.sciencesconf.org>).
- Julie Valein was a member of the organizing committee of the meeting "Contrôle et dynamique des EDP", which took place under the framework of the ANR ISDEEC, ( 28–30 March 2018, <http://isdeec.math.cnrs.fr/rencontres.html>).

#### 9.1.2. Journal

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

- Xavier Antoine is associate editor of "Multiscale in Science and Engineering" (Springer) and "International Journal of Computer Mathematics" (Taylor and Francis);
- David Dos Santos Ferreira is member of the editorial board of "Mathematical Control and Related Fields";
- Jean-Claude Vivalda is a member of the editorial board of the "Journal of Dynamical and Control Systems".

##### 9.1.2.2. Reviewer - Reviewing Activities

- Jean-François Scheid is reviewer for the "Applied Mathematics and Optimization" journal;
- Jean-Claude Vivalda is reviewer for the "Mathematical reviews".

#### 9.1.3. Invited Talks

- Xavier Antoine was invited to give a talk to
  - the mini-symposium "Waves and computation", Hong-Kong, 4-7 June, 2018;
  - the workshop "Méthodes numériques multi-échelles et/ou géométriques pour les équations de types cinétique ou Schrödinger," Rennes, 12-15 June 2018;
  - the workshop "Modern Numerical Methods in Quantum Mechanics", 27-29 June 2018, Gdansk, Poland;
  - "Forum on Applied and Computational Mathematics", July 22-23, 2018, Beijing CSRC.

- Alexandre Munnier was invited to give a talk at the “Groupe de travail EDP of the IECL”;
- Julie Valein was invited to give a talk at
  - the 14th Franco-Romanian conference on applied mathematics, (Bordeaux, Auguts 27–31 2018);
  - the conference “Analysis of PDEs : unique continuation, stabilization, control and dispersive properties”, in honour of Pr. L. Robbiano – IHP, Paris, November 5–9 2018 (one hour plenary exposition);
  - 2nd DECOD Workshop (DElays and CONstraints in Distributed parameter systems) – Toulouse, November 21–23 2018 (45 minutes plenary exposition).
- Jean-Claude Vivalda was invited to give a talk at the “Séminaires et journées d’Equations aux Dérivées Partielles“ in the maths laboratory of Versailles.

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

- Xavier Antoine is the director of the maths laboratory IECL.
- David Dos Santos Ferreira is one of the coordinators of the GDR “Analyse des EDP”. He is also the treasurer of the SMF (French mathematical society);
- Julien Lequeur is responsible of the “Séminaire EDP de l’Institut Elie Cartan de Lorraine, site de Metz”
- Julie Valein is co-responsible of the “Séminaire EDP de l’Institut Elie Cartan de Lorraine, site de Nancy”.

#### **9.1.5. Scientific Expertise**

Julie Valein participated in a associate professor position recruitment committee at Université de La Rochelle and at Université de Bordeaux (April-May 2018).

#### **9.1.6. Research Administration**

- Karim Ramdani is member of the board of the RNBM (Réseau National des Bibliothèques de Mathématiques) and is in charge of Open Access issues (with Benoît Kloeckner). Since October 2018, he is also member of the Working Group “Publications” of the national “Comité pour la Science Ouverte” of the french ministry of Higher Education, Research and Innivation.

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

### **9.2.1. Teaching**

Except L. Gagnon, K. Ramdadi, T. Takahashi and J.-C. Vivalda, SPHINX members have teaching obligations at "Université de Lorraine" and are teaching at least 192 hours each year. They teach mathematics at different level (Licence, Master, Engineering school). Many of them have pedagogical responsibilities.

### **9.2.2. Supervision**

PhD defended :

- Boris Caudron, June 2018, (Thèse CIFRE Thalès) , supervisor: X. Antoine.
- Benjamín Obando defended his PhD thesis “Mathematical models for the study of granular fluids” at Santiago on 18th December 2018. Supervisors: Jorge San Martín (University of Chile) and Takéo Takahashi.

PhD in progress:

- Mohamed ID SAID, Embedded automatic control with limited computational resources, from October 2017, supervisors: T. Chambrion and G. Millerieux;
- PhD in progress: Meriem BOUGUEZZI, Reaction-diffusion system for the modeling of a corrosion phenomena, from november 2017, J.-F. Scheid (co-supervisor);

- PhD in progress: Imem JBIL, Myocardial infarction as a fluid-structure system : modeling and simulations, from mars 2017, J.-F. Scheid (co-supervisor);
- PhD in progress: Imene DJEBOUR, Control and inverse problems on fluid-structure interaction systems, from November 2017, supervisor : T. Takahashi.

### **9.2.3. Juries**

- David Dos Santos Ferreira Jury was a member of the thesis jury of Matthieu Léautaud and Cristóbal Meroño.
- Takéo Takahashi reviewed the PhD theses of
  - Krisztián Benyó (defense on 25/09/2018 at Bordeaux);
  - Thi Minh Nhat Vo (defense on 04/10/2018 at Orléans);
  - Lamis Sabbagh (defense on 22/11/2018 at Montpellier).
- Julie Valein was a member of the thesis jury of Hawraa Nabolsi, defended in July 2018, at “Université de Valenciennes et du Hainaut-Cambrésis” (Title: “Contrôle optimal des équations d’évolution et ses applications.”, Advisors : Luc Paquet and Ali Wehbe.)
- Xavier Antoine served as a referee for the PhD thesis of Huda Al Taie, (Dec. 2018, Université de Nice).

## TOSCA Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Promotion of Mathematics in the industry

- A. Lejay is member of the board of AMIES (Agence Mathématiques en Interactions avec l'Entreprise et la Société).
- D. Talay continued to serve as a member of the Scientific Committee of the AMIES National Agency aimed to promote interactions between Mathematics and Industry.
- D. Talay continued to serve as the Vice-President of the Fondation d'Entreprise Natixis which aims to contribute to develop research in quantitative finance. He also serves as a member of the Scientific Committee of the Foundation.

#### 8.1.2. Scientific Events Organisation

##### 8.1.2.1. General Chair, Scientific Chair

- Etienne Tanré was the General Chair of the Fourth International Conference on Mathematical Neuroscience <https://icmns2018.inria.fr/>, held in Antibes-Juan les Pins, June 11-13 2018.

##### 8.1.2.2. Member of the Organizing Committees

- M. Bossy was a co-organizer of the workshop on Wasserstein calculus and related topics, ICMS, Edinburgh, UK- 19 to 23 November 2018.
- C. Fritsch co-organizes with Marianne Clausel (Univ. de Lorraine) the weekly Seminar of Probability and Statistics of IECL, Nancy.
- C. Fritsch co-organized the Ada Lovelace Day held at Inria Nancy – Grand Est, October 9.

#### 8.1.3. Scientific Events Selection

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

- M. Bossy is member of the SMAI2019 Conference Scientific Committee.
- D. Talay is serving as a member of the “Perturbation Techniques in Stochastic Analysis and Its Applications” Conference Program Committee (Luminy, France, 2019).

#### 8.1.4. Journal

##### 8.1.4.1. Member of the Editorial Boards

- N. Champagnat serves as an associate editor of *Stochastic Models*.
- N. Champagnat serves as co-editor-in-chief with Béatrice Laurent-Bonneau (IMT Toulouse) of *ESAIM: Probability & Statistics*.
- A. Lejay is one of the three editors of the *Séminaire de Probabilités* and *Mathematics and Computers in Simulation* (MATCOM).
- D. Talay served as an Area Editor of *Stochastic Processes and their Applications*, and as an Associate Editor of *Probability, Uncertainty and Quantitative Risk*, *ESAIM Probability and Statistics*, *Stochastics and Dynamics*, *Journal of Scientific Computing*, *Monte Carlo Methods and Applications*, *Oxford IMA Journal of Numerical Analysis*, *SIAM Journal on Scientific Computing*, *Communications in Applied Mathematics and Computational Science*, *Éditions de l'École Polytechnique*. He also served as Co-editor in chief of *MathematicS in Action*.

##### 8.1.4.2. Reviewer - Reviewing Activities

- N. Champagnat wrote reviews for *Annales de l'Institut Fourier*, *The Annals of Applied Probability* (three times this year), *Stochastic Processes and Their Applications*, *Electronic Journal of Probability* and *Frontiers of Mathematics in China*.
- C. Fritsch wrote reviews for *Applied Mathematics and Computation* and *PLOS ONE*.
- A. Lejay wrote reviews for *Proceedings of the Royal Society A*, *Mathematics and Computers in Simulation*, *Journal of Theoretical probability*, *Stochastic Processes and their Applications*, *Journal of computational physics*, *Journal of Functional Analysis*, *Electronic Journal of Probability*, *Journal of Optimization theory and applications*, *Physical Review E*, *Potential Analysis*, *Annals of Applied Probability*, *Annales de l'IHP, probabilités et statistique* and *Acta Mathematica Scientia*.
- D. Talay reported on applications to the Swiss National Science Foundation (SNSF).
- D. Talay reported on applications to the Research Grants Council (RGC) of Hong Kong.
- E. Tanré wrote reviews for *Annales Henri Lebesgue*, *The Annals of Applied Probability*, *Mathematics*, *MDPI*
- E. Tanré serves as a permanent reviewer of *Mathematical Reviews of the American Mathematical Society (MathSciNet)*.
- D. Villemonais wrote reviews for *Comptes-Rendus de l'Académie des Sciences de Paris*, *Journal of Advanced Probability*, *Electronic Journal of Probability*, *ESAIM: Probability & Statistics*, *Stochastic processes and applications*, *Markov Processes and Related Fields*, *The Annals of Applied Probability*.

### 8.1.5. Invited Talks

- N. Champagnat has been invited to give talks at the conference of ANR *NONLOCAL* in Chambéry in March, at the *Conference on Probability and Biological Evolution* at CIRM, Luminy in June, at *Journée mathématiques et informatique pour l'analyse des données et imagerie en oncologie* of the Cancéropôle Est at Institut de Cancérologie de Lorraine, Nancy in June, at the *MCQMC 2018* conference in Rennes in July, at the *Conference on Advances in Statistical Mechanics* at CIRM, Luminy in August, at the conference *Populations: Interactions and Evolution* at IHP, Paris in September and at the *ICMS workshop on Wasserstein calculus and related topics* at Bayes Center, Edinburgh in November.
- N. Champagnat has been invited to give a seminar talk at the *Groupe de travail PEIPS* at École Polytechnique in Palaiseau in February.
- N. Champagnat gave a colloquium talk at the *Colloquium - Mathématiques à Angers* in Angers in February.
- N. Champagnat has been invited to give a tutorial talk (mini-course) at the *Workshop on Mathematical Modeling with Measures: where Applications, Probability and Determinism Meet* at Lorentz Center, Leiden in December.
- Q. Cormier, P. Helson and E. Soret have presented three posters at the conference *International Conference on Mathematical Neuroscience* in Antibes Juan-les-Pins in June.
- C. Fritsch has been invited to give a plenary talk at the workshop *Modélisation stochastique et analyse en biologie* in Tours in May.
- C. Fritsch has been invited to give a plenary talk at the *third Mathematical Biology Modelling Days of Besançon* in June.
- C. Fritsch gave a talk at the *European Conference on Mathematical and Theoretical Biology* in Lisbonne in July.
- A. Lejay has been invited to give a mini-course "A short introduction to rough paths" in the *Rencontres Mathématiques de Rouen* in June 2018.
- A. Lejay has been invited to give a talk at the workshop *Random graphs and its applications for networks*, Saint-Étienne, October 2018.



- A. Lejay have been invited to give talks at the conference *Stochastics and PDE*, in Bucarest, September 2018 and at the conference *2th International Vilnius Conference on Probability Theory and Mathematical Statistics and 2018 IMS Annual Meeting on Probability and Statistics*, in Vilnius, June 2018.
- A. Lejay have been invited to give a seminar talk at the Mathematical Institute in Oxford, November 2018.
- E. Soret gave a lecture at the national conference *Journées de Probabilités* in Tours in June.
- D. Talay was an invited speaker at the ‘Symposium on Optimal Stopping in Honor of Larry Shepp’, Rice University in Houston, Texas, USA, 25-29 June 2018.
- D. Talay was an invited plenary speaker at the 9th International Conference on Stochastic Analysis and its Applications, Bielefeld, Germany, 3-7 September 2018.
- D. Talay was an invited speaker at the ‘Wasserstein Calculus and Related Topics’ Moscow-UK workshop on Stochastic Analysis, Edinburgh, UK, 19-23 November 2018.
- E. Tanré has given an invited talk at the *12th International Vilnius Conference on Probability Theory and Mathematical Statistics and 2018 IMS Annual Meeting on Probability and Statistics* in Vilnius in July.
- E. Tanré has been invited to give a seminar talk in Lyon in October.
- M. Tomasevic gave a seminar at CMAP Laboratory, Ecole Polytechnique, France, in March.
- M. Tomasevic gave a lecture at the ‘Jps-2018: Jeunes Probabilistes et Statisticiens 2018’, Saint-Pierre d’Oléron, France, 13-18 May 2018.
- M. Tomasevic gave a lecture at the national conference *Journées de Probabilités* in Tours in June.
- M. Tomasevic gave a lecture at the 9th International Conference on Stochastic Analysis and its Applications, Bielefeld, Germany, 3-7 September 2018.
- M. Tomasevic gave a lecture at the ‘Journée francilienne d’accueil des postdoctorants en mathématiques’, Institut H. Poincaré, Paris, France, in October.
- D. Villemonais has been invited to give talks at the *Workshop on Particle systems and PDEs* at Bath University and at the conference *Populations: Interactions and Evolution* at IHP, Paris in September.
- D. Villemonais has been invited to give seminar talks at Warwick University, at the *Probability seminar* of London School of Economics and at the probability seminar of Université Paris-Descartes.

### 8.1.6. Leadership within the Scientific Community

- M. Bossy is serving as a vice president of the Inria Evaluation Committee.
- A. Lejay is head of the Probability and Statistics team of Institut Élie Cartan de Lorraine.
- D. Talay continued to chair the Scientific Council of the French Applied Math. Society SMAI.
- D. Talay served as a member of the scientific council of the Complex System academy of the UCA Idex.
- D. Talay served as a member of the committee in charge of preparing the application of Paris to the International Congress of Mathematicians 2022.
- D. Talay is serving as a member of the CMUP Advisory Commission (University of Porto).
- D. Talay is a member of the Comité National Français de Mathématiciens.

### 8.1.7. Scientific Expertise

- M. Bossy served as a committee member for Pierre Lafitte Prize 2019.
- M. Bossy participated in a Associated Professor position recruitment committee at CMA Mines-ParisTech.
- M. Bossy was member of the hiring committee 26 PR at Université d’Evry.

- C. Fritsch is member of the Ph.D. monitoring committee of Léo Darrigade (INRA).
- D. Talay served as a member of the committee for positions in Applied Mathematics at the Ecole Polytechnique.
- D. Talay served as a member of the HCERES evaluation committees for the LPSM Laboratory (Paris Sorbonne University) and the ENSTA mathematics department.
- D. Talay chaired the 2019 Pioneer ICIAM prize committee.

### 8.1.8. Research Administration

- N. Champagnat is a member of the *Comité de Centre*, the *COMIPERS* and the *Commission Information Scientifique et Technique* of Inria Nancy - Grand Est, *Responsable Scientifique* for the library of Mathematics of the IECL, member of the *Conseil du laboratoire* of IECL (as *responsable scientifique* of the library). He is local correspondent of the COERLE (*Comité Opérationnel d'Évaluation des Risques Légaux et Éthiques*) for the Inria Research Center of Nancy - Grand Est.
- C. Fritsch is member of the *Commission du Développement Technologique* of Inria Nancy - Grand Est, of the *Commission du personnel* and the *Commission Parité-Égalité* of IECL. She is the local Raweb correspondent for the Inria Research Center of Nancy - Grand Est.
- A. Lejay is member of the Executive board of *LUE Impact project digitrust* (Univ. Lorraine), of the Conseil de Pôle AM2I (Univ. Lorraine) and of the CUMI (Inria NGE).
- D. Villemonais is responsible of the “ingénierie mathématique” cursus of École des Mines de Nancy and is elected member of the conseil de l'École des Mines de Nancy.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master : M. Bossy *Stochastic Particle Methods for PDEs*, 18h, M2 Probabilité et Applications, Université Pierre et Marie Curie, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 13.5h, M1, École des Mines de Nancy, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 13.5h, M2, École des Mines de Nancy, France.

Master: N. Champagnat, *Problèmes inverses*, 22.5h, M1, École des Mines de Nancy, France.

Master: C. Fritsch, *Introduction to Quantitative Finance*, 3h, M1, École des Mines de Nancy, France.

Master: C. Fritsch, *Probability theory*, 61h, M1, École des Mines de Nancy, France.

Master: C. Fritsch, *Probability theory*, 40h, L3, École des Mines de Nancy, France.

Master: A. Lejay, *Simulation des marchés financiers*, 29h, M2, Master PSA, Université de Lorraine, France.

Master: D. Talay *Invariant measures of diffusion processes*, 18h, M2 Probabilité et Applications, Université Paris 6, France.

Master: E. Tanré (courses and exercices), *Advanced Numerics for Computational Finance*, 30h (20h + 10h), M2, Univ. Côte d'Azur (Mathmods Erasmus Mundus), France.

Master: E. Tanré, *Mathematical Methods for Neurosciences*, 20h, M2, ENS - Master MVA / Paris 6 - Master Maths-Bio, France.

Master: E. Tanré (courses) and M. Tomasevic (practical classes) *Numerical probability for mathematical finance*, 20h (8h + 12h), M2, Univ. Côte d'Azur (Master IMAFA), France.

### 8.2.2. Supervision

PhD in progress: Alexis Anagnostakis, *Étude du mouvement brownien collant*, Université de Lorraine, Octobre 2018, A. Lejay and D. Villemonais.

PhD: Antoine Brault, *Flots rugueux et inclusions différentielles perturbées*, Université Toulouse 3, Octobre 2018, A. Lejay and L. Coutin (Université Toulouse 3).

PhD in progress: Lorenzo Campana, *Stochastic modeling of non-spherical particles transport and deposition by turbulent flow*, Université Côte d'Azur, December 2017, M. Bossy.

PhD in progress: Quentin Cormier, *Biological Networks of Spiking Neurons*, September 2017, E. Tanré and R. Veltz (MATHNEURO Inria team).

PhD in progress: Vincent Hass, *Individual-based models in adaptive dynamics and long time evolution under assumptions of rare advantageous mutations*, Université de Lorraine, October 2018, N. Champagnat.

PhD in progress: Pascal Helson, *Plasticity in networks of spiking neurons in interaction*, October 2016, E. Tanré and R. Veltz (MATHNEURO Inria team).

PhD in progress: Rodolphe Loubaton, *Caractérisation des cibles thérapeutiques dans un programme génique tumoral*, Université de Lorraine, October 2018, N. Champagnat and L. Vallat (CHRU Strasbourg).

PhD: M. Tomasevic, *On a Probabilistic Interpretation of the Keller-Segel Parabolic-Parabolic Equations*, Université Côte d'Azur, November 2018, D. Talay.

### 8.2.3. Juries

- M. Bossy served as a referee for the Ph.D. theses of Meïssam Bahlali, *Adaptation de la modélisation hybride eulérienne / lagrangienne stochastique de Code Satrne à la dispersion atmosphérique de polluants à l'échelle micro-météorologique et comparaison à la méthode eulérienne* Université Paris-Est, October 19, 2018, and of Alexandre Zhou, *Etude théorique et numérique de problèmes non linéaires au sens de McKean en finance*, Université Paris-Est, October 17, 2018.
- M. Bossy served as an examiner for the Ph.D. thesis of Isaque Santa Brigida Pimentel, *Valorisation optimale asymptotique avec risque asymétrique et applications en finance*, Université Paris Saclay, October 16, 2018.
- M. Bossy served as an examiner for the HDR of Dario Vincenzi, *Dynamique Lagrangienne en Turbulence et Turbulence Elastique*, Université Côte d'Azur, December 14, 2018.
- N. Champagnat served as a referee for the Ph.D. theses of Simon Girel, *Modélisation de la réponse immunitaire T-CD8: Analyse mathématique et modèles multiéchelles*, Univ. Lyon 1, November 13, 2018 and of Paulien Jeunesse, *Analyse statistique autour du taux de mortalité*, Université Paris Dauphine, January 8, 2019.
- N. Champagnat served as an examiner for the Ph.D. thesis of Rim Touibi, *Sur le comportement qualitatif des solutions de certaines équations aux dérivées partielles stochastiques de type parabolique*, Université de Lorraine, December 8, 2018.
- A. Lejay served as an examiner for the Ph.D. theses of Rim Touibi, *Sur le comportement qualitatif des solutions de certaines équations aux dérivées partielles stochastiques de type parabolique*, Université de Lorraine, December 8, 2018, of Antoine Brault, *Flots rugueux et inclusions différentielles perturbées*, Université Toulouse 3, October 8, 2018, and of Guillaume Copros, *Convergence of generic infinite products of nonexpansive and uniformly continuous operators*, Université Toulouse 3, October 2018.
- A. Lejay served as an examiner for the Habilitation thesis of Renaud Marty, *Quelques contributions à l'étude et aux applications des processus multifractionnaires et de la longue dépendance*, Université de Lorraine, February 2018.
- D. Talay served as an examiner for the Ph.D. thesis of Xiaoli Wei, *Problèmes de Contrôle de type McKean-Vlasov et Applications*, Université Paris Diderot, December 2018.

- D. Talay served as an examiner for the Habilitation thesis of Guillaume Bernis, *Modélisation Probabiliste des Marchés de Crédit*, université Paris Panthéon Sorbonne, January 2018.
- D. Talay served as an examiner for the Habilitation thesis of Ludovic Goudenège, *Algorithmes Numériques pour des Problèmes Stochastiques*, université Paris Saclay, December 2018.
- D. Talay served as a referee for Ph.D. thesis of Igor Honoré, *Estimations Non Asymptotiques de Mesures Invariantes et Régularisation par un Bruit Dégénéré de Chaînes d'Equations Différentielles Ordinaires*, université Paris Saclay, December 2018.

## 8.3. Popularization

### 8.3.1. Interventions

- M. Bossy gave the plenary lecture for the Academic Awards Ceremony of the Olympics of Geosciences and Mathematics 2018.
- Q. Cormier has animated the Inria desk at *Fête de la Science*.
- E. Tanré has presented his researches at *Journées Portes Ouvertes - Inria Sophia-Antipolis*.

## BIGS Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### 9.1.1. Scientific Events Organisation

##### 9.1.1.1. General Chair, Scientific Chair

A. Gégout-Petit is ETC program coordinator of the European Meeting of Statisticians, Palermo, July 2019.

##### 9.1.1.2. Reviewer - Reviewing Activities

All BIGS members are regular reviewers for journals in probability, statistics and machine learning as: Bernoulli, Scandinavian Journal of statistics, Stochastics, Journal of Statistical Planning Inference, Journal of theoretical Biology, IEEE Trans. Biomedical Eng., Theoretical Biology and Medical Modelling, Royal Society of Chemistry, Signal Processing: Image Communication, Mathematical Biosciences, LIDA, Annals of Applied Probability, Annals of Operations Research and Journal of Machine Learning Research, as well as conferences such as ICML, World IFAC Congress, FOSBE, ALCOSP...

#### 9.1.2. Leadership within the Scientific Community

Anne Gégout-Petit is member of the board of the European Regional Council of the Bernoulli society.

#### 9.1.3. Research Administration

Anne Gégout-Petit is member of "Bureau du comité des projets", centre Inria Nancy Grand-Est.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

R. Azaïs and B. Scherrer excepted, BIGS members have teaching obligations at "Université Lorraine" and are teaching at least 192 hours each year. They teach probability and statistics at different level (Licence, Master, Engineering school). Many of them have pedagogical responsibilities.

### 9.2.2. Supervision

- PhD : Clémence Karmann, "Network inference for zero-inflated models", Grant : Inria-Cordis. Advisors: A. Gégout-Petit, A. Muller-Gueudin.
- PhD : Florine Greciet, "Modèles markoviens déterministes par morceaux cachés pour la propagation de fissures", grant CIFRE SAFRAN AIRCRAFT ENGINES, Advisors : R. Azaïs, A. Gégout-Petit.
- PhD : Kévin Duarte, "Aide à la décision médicale et télémédecine dans le suivi de l'insuffisance cardiaque", Advisors : J.-M. Monnez and E. Albuissou.
- PhD : Pauline Guyot, "Modélisation et Simulation de l'Electrocardiogramme d'un Patient Numérique", Grant : CIFRE-Cybernano. Advisors: T. Bastogne, E. H. Djermoune.
- PhD: Nassim Shaki, "Détection de rupture dans des signaux multivariés pour la prédiction d'événement redouté à partir de paramètres physiologiques recueillis par capteurs connectés après greffe pulmonaire", grant Inria-Cordis. Advisors: A. Gégout-Petit, S. Mézières, M. d'Ortho.
- Benoît Lalloué, contract research engineer for two years, RHU Fight RF, supervised by Jean-Marie Monnez.
- Postdoc: Lionel Lenôtre, Telomer Modelling, grant LUE GEENAGE. Advisors: A. Gégout-Petit, D. Villemonais.
- Since October 15, 2018, Jean-Marie Monnez supervises the work in RHU Fight.

- Master: all BIGS members regularly supervise project and internship of master IMOI students.
- Engineering school: all BIGS members regularly supervise project of "Ecole des Mines ", ENSEM or EEIGM students.

### **9.2.3. Juries**

- T. Bastogne participated to the jury of the Phd defense of Julie Kabil, Université Lorraine, January 2018.
- A. Gégout-Petit participated to the jury of the Phd defense of Neska El Haouij, Université de Paris-Saclay, July 2018.
- A. Gégout-Petit participated to the jury of the Phd defense of Lucien Bacharach, Université de Paris-Saclay, September 2018.
- A. Gégout-Petit was reviewer and participated to the jury of the Phd defense of Maxime Redondin, Université Paris-Est, December 2018.
- A. Gégout-Petit participated to the jury of the Phd defense of Aurélie Marton, Université Lorraine, December 2018.
- A. Gégout-Petit was reviewer and participated to the jury of the HDR defense of Frédéric Bertrand, Université de Strasbourg, December 2018.
- JM Monnez was advisor and participated to the jury of the PhD defense of Kévin Duarte, December 2018.
- Bruno Scherrer was reviewer and participated to the jury of the Phd defense of Anna Harutyunyan, at Vrije Universiteit, Bruxelles, March 2018.

### **9.3. Popularization**

- S. Ferrigno: Advisor of a group of students (EEIGM), "La main à la Pâte" project, elementary schools, Nancy, January-June 2018
- S. Ferrigno: Advisor of a group of students (EEIGM), "La main à la Pâte" project, Institut médico-éducatif (IME), Commercy, September-December 2018
- S. Ferrigno: Advisor of a group of students (EEIGM), "Utilisation de la technologie dans la médecine" Cgénial project, Collège Paul Verlaine, Malzéville, December 2018-February 2019.
- S. Ferrigno: Advisor of a group of students (EEIGM), "Le cartable connecté" Cgénial project, Collège de la Craffe, Nancy, December 2018-February 2019.

## CAPSID Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

Marie-Dominique Devignes is a member of the Steering Committee for the European Conference on Computational Biology (ECCB; <http://eccb.iscb.org/>). She was co-organizer of the national Workshop on AI and Health in the frame of PFIA 2018 (<https://pfia2018.loria.fr/journeeiasante/>), and she co-organized the Journée Entreprises (Atelier Santé) of the Fédération Charles Hermite (<http://www.loria.fr/wp-content/uploads/2017/12/Programme-Forum-FCH-Entreprises.pdf>).

Malika Smaïl-Tabbone is a member of the steering committee of the Conférence Francophone sur la Recherche d'Information et ses Applications (CORIA).

### 9.1.2. Scientific Events Selection

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

Malika Smaïl-Tabbone is a member of the organizing committee for Inforsid 2018 and EGC 2018, and is in charge of the é-EGC winter school in Metz.

#### 9.1.2.2. Reviewer

Marie-Dominique Devignes was a reviewer for IWBBIO and BIBM.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

David Ritchie is a member of the editorial board of Scientific Reports.

Sabeur Aridhi is a member of the editorial board of Intelligent Data Analysis.

#### 9.1.3.2. Reviewer - Reviewing Activities

The members of the team have reviewed manuscripts for *Bioinformatics*, *BMC Bioinformatics*, *Computational and Structural Biotechnology Journal*, *Computational Biology and Chemistry*, *Evolutionary Bioinformatics*, *Journal of Computational Chemistry*, *Journal of Chemical Information and Modeling*, *Journal of Molecular Graphics and Modeling*, *Nucleic Acids Research*, *PLoS One*, *Proteins: Structure, Function & Bioinformatics*, and *Structure*.

### 9.1.4. Invited Talks

Marie-Dominique Devignes gave a presentation on accelerating precision medicine to the OLINK proteomics society in Uppsala, Sweden.

Malika Smaïl-Tabbone gave a talk on “Integrative Machine Learning Applied on Drug Side Effect Profiles” at WCP2018 (18th World Congress of Basic and Clinical Pharmacology) in Kyoto, Japan.

Isaure Chauvot de Beauchêne gave a presentation on docking by combinatorial assembly of fragments to the Centre de mathématiques et de leurs applications (CMLA) at ENS Cachan.

### 9.1.5. Scientific Expertise

Marie-Dominique Devignes reviewed grant applications for the ANR programme “Appel générique-JCJC”.

Malika Smaïl-Tabbone reviewed grant applications for the ANR and for the Indo-French Centre for the Promotion of Advanced Research.

Sabeur Aridhi reviewed grant applications for the French Committee for the Evaluation of Academic and Scientific Cooperation with Brazil (COFECUB).

David Ritchie is a member of the Bureau of the GGMM (Groupe de Graphisme et Modélisation Moléculaire).

Isaure Chauvot de Beauchêne is the team's representative to the ELIXIR 3D-Bioinfo working group, which is an essential link between the national IFB and the European ELIXIR projects that aim to make bioinformatics software and platforms available to non-expert biologists.

### 9.1.6. Research Administration

Marie-Dominique Devignes is Chargée de Mission for the CyberBioHealth research axis at the LORIA and is a member of the "Comipers" recruitment committee for Inria Nancy – Grand Est.

David Ritchie is a member of the Commission de Mention Informatique (CMI) of the University of Lorraine's IAEM doctoral school. Until November 2018 he was a member of the Bureau of the Project Committee for Inria Nancy – Grand Est.

Sabeur Aridhi is responsible for the major in IAMD (Ingénierie et Applications des Masses de Données) at TELECOM Nancy (Univ. Lorraine), and a member of the "Commission du Développement Technologique" recruitment committee at Inria Nancy – Grand Est.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence: Sabeur Aridhi, *Programming Techniques and Tools*, 24 hours, L1, Univ Lorraine.

Licence: Sabeur Aridhi, *Databases*, 82 hours, L1, Univ Lorraine.

Licence: Sabeur Aridhi, *Massive Data Management*, 68 hours, L2, Univ Lorraine.

Licence: Sabeur Aridhi, *NoSQL Databases*, 44 hours, L2, Univ Lorraine.

Licence: Sabeur Aridhi, *Big Data Hackathon*, 8 hours, L3, Univ Lorraine.

Licence: Marie-Dominique Devignes, *Relational Database Design and SQL*, 30 hours, L3, Univ Lorraine.

Licence: Isaure Chauvot de Beauchêne, *TD Bioinformatique et Modelisation*, 10 hours, L3, Univ Lorraine.

Licence: Malika Smaïl-Tabbone, *Relational Databases*, 90 hours, L2, L3, Univ Lorraine.

Licence: Malika Smaïl-Tabbone, *NoSQL Databases*, 30 hours, M1, Univ Lorraine.

Licence: Malika Smaïl-Tabbone, *Programming Techniques*, 30 hours, L2, Univ Lorraine.

Master: Malika Smaïl-Tabbone, *KDD and Data Mining Algorithms*, 90 hours, M2, Univ Lorraine.

Master: Malika Smaïl-Tabbone, *Databases : Concepts and Techniques*, 30 hours, M2, Univ Lorraine.

Master: Malika Smaïl-Tabbone, *Ontology Management and Semantic Web Technologies*, 30 hours, M2, Univ Lorraine.

Master: Sabeur Aridhi, *Knowledge Discovery and Data Engineering*, 10 hours, M2, Univ Lorraine.

### 9.2.2. Supervision

PhD in progress: Maria Elisa Ruiz Echartea, *Multi-component protein assembly using distance constraints*, 01/11/2016, David Ritchie, Isaure Chauvot de Beauchêne.

PhD in progress: Kévin Dalleau, *Complex graph analysis for classification: application to disease nosography*, 01/12/2016, Malika Smaïl-Tabbone, Miguel Couerceiro.

PhD in progress: Bishnu Sarker, *Developing distributed graph-based approaches for large-scale protein function annotation and knowledge discovery*, 01/11/2017, David Ritchie, Sabeur Aridhi.

PhD in progress: Antoine Moniot, *Modeling protein / nucleic acid complexes by combinatorial structural fragment assembly*, 01/11/2017, David Ritchie, Isaure Chauvot de Beauchêne.

PhD in progress: Athénais Vaginay, *Model selection and analysis for biological networks: use of domain knowledge and application to networks disturbed in diseases*,

01/11/2017, Taha Boukhobza, Malika Smaïl-Tabbone.



## MIMESIS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Reviewing Activities

Members of the teams regularly provide reviews for:

- Int. Conferences and journals on Information Processing in Computer-Assisted (miccai, ipcai, media,
- Interventions, Workshop on Virtual Reality Interaction and Physical Simulation (eurographics, vriphys, ...)
- International Conference on Robotics and Automation (iros, icra,..)

#### 10.1.1.2. Member of the Organizing Committees

Stéphane Cotin participated to the organization of the Patient-specific Computational Biomechanics Symposium at World Congress on Computational Mechanics (WCCM 2018).

#### 10.1.2. Journal

**Member of the Editorial Boards:** Hadrien Courtecuisse was program chair for the international conference Eurographics 2018.

#### 10.1.3. Invited Talks

- 2018 Stéphane Cotin: Invited lecture – workshop on “Virtual and Augmented Reality” (Toulouse, France)
- 2018 Stéphane Cotin: Invited lecture - Academy of Sciences (Paris, France)
- 2018 Stéphane Cotin: Invited lecture - BEST symposium (Strasbourg, France)

#### 10.1.4. Scientific Expertise

Stéphane Cotin provide provides scientific expertise for the startup Insimo.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : Igor Peterlik, Modélisation des systèmes vivants, 17h, M2, University of Strasbourg

Master : Igor Peterlik, Visualisation des données et simulation, 10h, M1, University of Strasbourg

Master : Hadrien Courtecuisse, Real time simulation, 30h, M2, University of Strasbourg

Master : Hadrien Courtecuisse, Visualisation des données et simulation, 10h, M2, University of Strasbourg

Master : Hadrien Courtecuisse, Visualisation des données et simulation, 10h, M1, University of Strasbourg

### 10.2.2. Supervision

PhD: Yinoussa Adagolodjo, Coupling between robotics and medical simulation for automated procedures, 01/02/2016, supervised by Hadrien Courtecuisse.

PhD in progress: Jaime Garcia Guevara, Augmented ultrasound imaging for hepatic surgery, 01/09/2015, supervised by Stéphane Cotin, Marie-Odile Berger.

PhD in progress: Raffaella Trivisonne, Computer-aided vascular interventions, 01/09/2015, supervised by Stéphane Cotin and Erwan Kerrien.

PhD in progress: Nicolas Golse, Navigation using the augmented reality during hepatic surgery, 01/09/2016, supervised by Stéphane Cotin.

PhD in progress: Sergei Nikolaev, Characterization of boundary conditions for biomechanical modeling of liver, 01/05/2017, supervised by Stéphane Cotin, co-supervised by Igor Peterlik and Hadrien Courtecuisse.

PhD in progress: Jean-Nicolas Brunet, Characterization of boundary conditions for biomechanical modeling of liver, 01/09/2017, supervised by Stéphane Cotin.

PhD in progress: Andrea Mendizabal, Numerical simulation of soft tissues and machine learning, 01/09/2017, supervised by Stéphane Cotin.

PhD in progress: Paul Baksic, Robotic assistance for percutaneous surgical interventions in deformable structures – Application to radiofrequency ablation, 01/10/2018, supervised by Hadrien Courtecuisse.

### **10.2.3. Juries**

Hadrien Courtecuisse was a member of jury of the PhD defense of Yinoussa Adagolodjo and Fanny Morin. Strasbourg University and Grenoble University.

## NEUROSYS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

Laurent Bougrain is a member of the Board of Directors of the scientific society CORTICO for the promotion of Brain-Computer Interfaces in France.

Laurent Bougrain is a member of the steering committee of the research network in neuroscience of the university of Lorraine.

Laure Buhry is an elected member of the "Pôle Scientifique AM2I" council of university of Lorraine.

Sébastien Rimbert is an elected member of the doctoral school IAEM of university of Lorraine.

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

- Laurent Bougrain is a member of the organization committee of the scientific days of the research network in neuroscience of the university of Lorraine, June 14th 2018 (topic: learning and memory) & December 18th 2018 (topic: motor system).

#### 9.1.1.2. Member of the Organizing Committees

- Laure Buhry is a member of the organization committee of the IPAC seminar (Image, Perception, Action et Cognition).

### 9.1.2. Scientific Events Selection

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

Laurent Bougrain is a member of the program committee of the IEEE conference on System, Man and Cybernetics.

### 9.1.3. Invited Talks

- Laurent Bougrain, Brain-Computer Interfaces, Oct. 4th 2018, Yamazaki Lab, Kuytech, Japan
- Laurent Bougrain, Brain-Computer Interfaces, Oct. 5th 2018, Natsume Lab, Kuytech, Japan
- Laurent Bougrain, Neuronal effect therapeutic hypnosis and anesthesia on the movement intention, scientific days of the research network in neuroscience of the university of Lorraine, Dec. 18th 2018 (topic: motor system).

### 9.1.4. Leadership within the Scientific Community

Laurent Bougrain is a member of the Board of Directors of the scientific society CORTICO for the promotion of Brain-Computer Interfaces in France.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Engineering school: L. Bougrain, Brain-Computer Interfaces, 4.5h, 3rd year, Supelec, France  
 Engineering school: L. Bougrain, Artificial Intelligence, 61h, 3rd year, Telecom Nancy, France  
 Engineering school: A. Aussel, Python, Ecole des Mines, Nancy, France  
 Master: L. Buhry, Algorithms for Artificial Intelligence, 31h, Master of cognitive science, 1st year, University of Lorraine, France  
 Master: L. Buhry, Fundamental Artificial Intelligence and data mining, 18h, Master of cognitive science, 1st year, University of Lorraine, France  
 Master: L. Buhry, Formalisms for representation and reasoning, 25h, Master of cognitive science, 1st year, University of Lorraine, France  
 Master: L. Buhry, Memory and Machine Learning, 38h, Master of cognitive science, 1st year, University of Lorraine, France  
 Master: L. Buhry, Computational Neurosciences, 25h, Master of cognitive science, 2nd year/SCMN, University of Lorraine, France  
 Master: L. Bougrain, Learning and reasoning in the uncertain, 32h, Master of computer science, 2nd year, University of Lorraine, France  
 Master: S. Rimbart, Brain-Computer Interface, 17h, Master of cognitive sciences, 2nd year, University of Lorraine, France  
 Master: A. Aussel, Computational Neuroscience, Master of cognitive sciences, 2nd year, University of Lorraine, France  
 Licence: S. Rimbart, Introduction to Neurosciences, 15h, Licence of cognitive sciences, 1st year, University of Lorraine, France  
 Licence: L. Buhry, Programmation Python, 37h, level L1 MIASHS, University of Lorraine, France  
 Licence: L. Buhry Probability and statistics, 30h, level L1 MIASHS, University of Lorraine, France  
 Licence: L. Buhry, Artificial Intelligence and problem solving, 25h, level L3 MIASHS, University of Lorraine, France  
 Licence: L. Bougrain, programming on mobile devices, 17h, Licence of computer science, 3rd year, University of Lorraine, France

### 9.2.2. Supervision

PhD in progress: Amélie Aussel, Extraction of electrophysiological markers and mathematical modelling of the epileptic hippocampus, October 1st 2016, Laure Buhry and Radu Ranta (CRAN).  
 PhD in progress: Sébastien Rimbart, Study of the dynamic of cerebral motor patterns during general anesthesia, January 1st 2016, Axel Hutt and Laurent Bougrain.  
 PhD in progress: Oleksii Avilov, methods for on-line detection of neural rhythm changes in the motor system: application to brain-computer interfaces, June 1st 2018, Patrick Hénaff, Laurent Bougrain and Anton Popov (Kiev polytechnic institute).  
 PhD in progress: Nathalie Azevedo Carvalho, a biologically plausible computer model of pathological neuronal oscillations observed in Parkinson's disease, November 1st 2018, Dominique Martinez and Laure Buhry.

### 9.2.3. Juries

Ph.D. thesis jury: Louis Korczowski, Methods for multi-subject electroencephalography and application to brain-computer interfaces, university Grenoble-Alpes, October 17th 2018, L. Bougrain (member)

## 9.3. Popularization

Neurosyst's activities. Artificial Intelligence, IoT and robotics for health, association ATD quart-monde, June 10th 2018 (L. Bougrain)

## TONUS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Organization of events

- Philippe Helluy: Workshop on Compressible Multiphase Flows : Derivation, closure laws, thermodynamics, IRMA, May 2018.
- Emmanuel Franck: Workshop IPL : Breitenbach, November 2018

#### 10.1.1.2. Reviewer

- Emmanuel Franck was a reviewer for
  - Communication in computation physics,
  - Journal of Computational Physics.
- Philippe Helluy was a reviewer for
  - Computers and fluids,
  - Communication in computational physics,
  - Numerical methods for partial differential equations,
  - ESAIM proceedings.
- Philippe Helluy is editor for:
  - International Journal on Finite Volume,
  - Computational and Applied Mathematics.
- Sever Hirstoaga was a reviewer for
  - Acta Applicandae Mathematicae,
  - Journal of Approximation Theory,
  - Journal of Computational and Applied Mathematics.

#### 10.1.2. Invited Talks

- Emmanuel Franck was invited in
  - Canum 2018, Cap d'Agde, June 2018 (national conference),
  - Workshop Jorek, Oxford , May 2018,
  - Workshop Achylles, Bordeaux, March 2018,
  - Workshop ABPDE3, Lille, September 2018,
  - Numkin 2018, Munich, October 2018,
  - Würzburg numerical analysis seminar, April 2018,
  - Workshop IPL , November 2018.
- Florence Drui was invited in
  - Summer School GDR Manu, Roscoff, July 2018,
  - Workshop on compressible multiphase flow, Strasbourg, May 20118,
  - Autumn school, "Hyperbolic Conservation Laws", Würzburg, October 2018,
  - item Workshop IPL , November 2018.

- Laura Mendoza was invited in
  - Numkin 2018, Munich, October 2018,
  - Workshop IPL , November 2018,
  - Research and Scientific meeting, IRFM, CEA, Cadarache.
- Laurent Navoret was invited in
  - Numkin 2018, Munich, October 2018,
  - Workshop IPL , November 2018,
  - Seminar, Groupe de travail "Applications des Mathématiques", ENS Rennes.
- Michel Merhenberger was invited in
  - Numkin 2018, Munich, October 2018.
- Sever Hirstoaga was invited in
  - Workshop "Kinetic equations for Astrophysics", IRMA.

### **10.1.3. Scientific Expertise**

- Philippe Helluy is in the evaluation committee of the "réseau calcul" of CNRS.

### **10.1.4. Research Administration**

- Philippe Helluy
  - Director of the IRMA mathematics institute since September 2018.
- Laurent Navoret
  - Head of the master (Agrégation) since September 2018.
- Matthieu Boileau
  - Elected to the "Commission de la Recherche du Conseil Académique" of Strasbourg University,
  - Co-leader of "réseau métier Calcul" CNRS,
  - Member of the "Commission du Développement Technologique". l'Inria Nancy,
  - Member of users comity. IDRIS,
  - Member of X-Stra network (IA days in 2018).
- Michel Mehrenberger
  - Correspondent SMAI for IRMA,
  - Member of "École Doctorale ED209".

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

### **10.2.1. Teaching**

- Florence Drui :
  - Numerical analysis, TD and TP, L3 (58h)
- Laura Mendoza :
  - Scilab and algorithm, CPGE Lycée Kleber (120h).
- Laurent Navoret :
  - Licence : Nonlinear optimisation (18h eq. TD),
  - Licence : Scientific computing (64 eq. TD),
  - Master 1: Scientifique computing 2 (35h eq. TD),
  - Master 2 (Agrégation) : scientific computing (38h eq. TD),

- Master 2 (Agrégation) : Problem correction (12h eq. TD),
- Master 2 (Cell physics) : Basics in maths (24h eq. TD),
- Philippe Helluy :
  - L2: Scientific computing (64 eq. TD),
  - Master 1: graph and algorithm (30h eq. TD),
  - Master 2 (Agrégation) : scientific computing (30h eq. TD),
  - Master 2 CSMI : hyperbolic PDE (30h eq. TD),
  - Master 2 CSMI : Optimal control (30h eq. TD).
- Matthieu Boileau:
  - Master 2 : data sciences (18h),
  - Master 1 CSMI : parallel computing (15h),
  - Master ESPE : Python for science (28h).
- Michel Mehrenberger:
  - Summer school at Harbin Institute of Technology (HIT) en Chine (16h),
  - L1: mathematics for biology (42h),
  - L3: nonlinear optimisation (54h+65h),
  - Master 1: scientific computing (32.5h),
  - Master 1: python (13h),
  - Master 2 (agrégation): scientific computing (8h).
- Michaël Gutnic:
  - L1: mathematics for biology (66h),
  - L1: statistic for biology (72h),
  - L3: scientific computing (32h).

### 10.2.2. Supervision

- Master 2 (agrégation) thesis: Louis Stutzmann, 01/2018 - 05/2018, Advisor: Sever Hirstoaga.
- PhD in progress: Lucie Quibel (CIFRE support): in collaboration with EDF Chatou, from October 2017, Advisor: Philippe Helluy.
- PhD in progress: Marie Houillon: "Modeling of thin wires in electromagnetic software", Advisors: Philippe Helluy and Laurent Navoret, from October 2017, Labex Irmia support.
- PhD finished in November 2018: Bruno Weber(CIFRE support): "Optimization of DG software on GPU in the AxesSim company". Advisor: Philippe Helluy.
- PhD in progress: Maxime Schmitt: "Optimization of scientific software with arbitrary mesh refinement", Advisors: Philippe Helluy and Cédric Bastoul (CAMUS team). Labex Irmia support.
- PhD in progress: Ksander Ejjaaouani, "Conception of a programmation model, application to gyrokinetic simulations", from October 2016, Advisors: Michel Mehrenberger, Julien Bigot, Olivier Aumage.
- PhD finished in December 2018: Nicolas Bouzat, "Conception of a programmation model, application to gyrokinetic simulations", from October 2015, Advisors: Michel Mehrenberger, Jean Roman, Guillaume Latu.
- PhD finished in october 2018: Yann Barsamian "Optimization of PIC and SL schemes for multi species simulations", from October 2015, Advisors: Michel Mehrenberger, Sever Hirstoaga, Eric Violard.
- PhD in progress: Pierre Gerhard, "Résolution des modèles cinétiques. Application à l'acoustique du bâtiment", from October 2015, Advisors: Philippe Helluy, Laurent Navoret.

### **10.2.3. Juries**

- M. Mehrenberger and S. Hirstoaga were members of jury of the PhD committee of Yann Barsamian, University of Strasbourg,
- Philippe Helluy was member/reviewer of jury of the PhD committee of Benedict Dingfelder, TUM,
- Philippe Helluy was member/reviewer of jury of the PhD committee of Gentien Marois, Bordeaux,
- Philippe Helluy was member of jury of the PhD committee of Nicolas Bouzat, University of Strasbourg.

### **10.3. Popularization**

- Philippe Helluy: "Des modèles mathématiques en acoustique des bâtiments" Rencontres mathématiques-architecture. Strasbourg, October 2018.
- Michel Mehrenberger: participation to "Maths-en-Jean".



## Coast Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

Claudia-Lavinia Ignat and François Charoy were general co-chairs of ECSCW 2018.

#### 9.1.1.2. Member of the Organizing Committees

Claudia-Lavinia Ignat, François Charoy and Gérald Oster were members of the ECSCW organising committee (European Conference on Computer-Supported Cooperative Work: The International venue on Practice-centred computing and the Design of cooperation technologies) 2018.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

Claudia-Lavinia Ignat was co-chair of the Program Committee of ECSCW 2018. Gérald Oster was co-chair of the Demo and Poster Program Committee of ECSCW 2018.

#### 9.1.2.2. Member of the conference program committees

- Claude Godart was PC member of the conference program committee of BPMDS (Business Process Modelling, Development and Support) 2018, EDOC (The enterprise computing conference), ICSOC (International Conference on Services Oriented Computing) 2018, ICWS (IEEE International Conference on Web Services) 2018, SCC (IEEE International Conference on Services Computing) 2018, WISE (Web Information Systems Engineering) 2018.
- Claudia-Lavinia Ignat was PC member of ECSCW (European Conference on Computer-Supported Cooperative Work: The International venue on Practice-centred computing and the Design of cooperation technologies) 2018, CDVE (International Conference on Cooperative Design, Visualisation and Engineering) 2018, CRIWG (International Conference on Collaboration and Technology) 2018
- François Charoy was PC Member of ICEBE (International Conference on Business Engineering) 2018, CTS 2018 (International Symposium on Collaborative Technologies and Systems), DG.O (International Conference on Digital Government Research) 2018, ICSOC 2018, IEEE International Conference on Business Information Systems, ISCRAM 2018, ECSCW 2018 and of several workshops.
- Gérald Oster was a PC member of CoopIS (International Conference on Cooperative Information Systems) 2018, CSCW (21st ACM Conference on Computer-Supported Cooperative Work and Social Computing) 2018 and ECSCW 2018.
- Khalid Benali was PC member of I-ESA'2018 (Interoperability of Enterprise Software and Applications), WorldCIST'18 (World Conference on Information Systems and Technologies), I3E 2018 (IFIP Conference on e-Business, e-Services and e-Society), ISKO-Maghreb'2018 (7th International Symposium ISKO-Maghreb'2018), MEDES 2018 (10th International Conference on Management of Digital EcoSystems).

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- Claude Godart is a member of the editorial board of IEEE Transactions on Service Computing, International Journal of Services Computing, and member of the review board of the International Journal of Next Generation Computing.

- Claudia-Lavinia Ignat is member of the editorial board of Journal of CSCW (Computer Supported Cooperative Work).
- François Charoy is member of the editorial board of Service Oriented Computing and Applications Journal (Springer).

#### 9.1.3.2. Reviewer - Reviewing activities

- Olivier Perrin reviewed papers for IEEE Transactions on Services Computing journal, IEEE Transactions on Parallel and Distributed Systems and Journal of Systems and Software.
- Claudia-Lavinia Ignat reviewed papers for CSCW 2018.
- Gérald Oster reviewed papers for Computer Supported Cooperative Work Journal, ECSCW 2018, CSCW 2018, CoopIS 2018.

#### 9.1.4. Invited Talks

Claudia-Lavinia Ignat was invited to give the opening keynote “From groupware to large-scale trustworthy distributed collaborative systems” at CRIWG 2018.

#### 9.1.5. Scientific Expertise

François Charoy was member of the HCERES committee for the SAMOVAR Lab, IMT Sud Paris

#### 9.1.6. Research Administration

François Charoy and Claudia-Lavinia Ignat are steering committee members of European Society for Socially Embedded Technologies (EUSSET).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Permanent members of the Coast project-team are leading teachers in their respective institutions. They are responsible of lectures in disciplines like software engineering, database systems, object oriented programming and design, distributed systems, service computing and more advanced topics at all levels and in different of departments in the University. Most of the PhD Students have also teaching duties in the same institutions. As a whole, the Coast team accounts for more than 2500 hours of teaching. Members of the Coast team are also deeply involved in the pedagogical and administrative life of their departments.

- Claude Godart is responsible for the Computer Science Department of the engineering school ESSTIN.
- Khalid Benali is responsible for the professional master degree speciality “Distributed Information Systems” of MIAGE and of its international branch in Morocco.
- François Charoy is responsible of the Software Engineering specialisation at the TELECOM Nancy Engineering School of University of Lorraine.

### 9.2.2. Supervision

- PhD (defended): Quang Vinh Dang, Trust-based large scale collaboration, started in 10/2014, Claudia-Lavinia Ignat and François Charoy
- PhD (in progress): Hoai Le Nguyen, Study of group performance and behaviour in collaborative editing, started in 9/2015, Claudia-Lavinia Ignat and François Charoy
- PhD (in progress): Hoang Long Nguyen, A Trust Based Authorisation Model and Framework for the Cloud, started in 11/2015, Claudia-Lavinia Ignat and Olivier Perrin
- PhD (in progress): Victorien Elvinger, Secured Replication for Peer-to-Peer Collaborative Infrastructures, started in 10/2015, François Charoy and Gérald Oster

- PhD (in progress): Guillaume Rosinoski, Elastic BPM and the Cloud, started in 10/2014, François Charoy and Samir Youssef
- PhD (in progress): Quentin Laporte-Chabasse, Federation of Organisations over Peer to Peer Collaborative Network, started in 10/2016, François Charoy and Gérald Oster
- PhD (in progress): Béatrice Linot, Trust in cooperative systems, Jérôme Dinet et François Charoy, started 11/2016
- PhD (in progress): Anis Ahmed Nacer, Safe Service Composition, Olivier Perrin and François Charoy, started 3/2017
- PhD (in progress): Matthieu Nicolas, Optimisation of Replication Algorithms, Olivier Perrin and Gérald Oster, started 10/2017

### **9.2.3. Juries**

- Claudia-Lavinia Ignat was member of CRCN recruitment jury at Inria Nancy-Grand Est

Coast members were members of the following PhD and HdR defence committees:

- Noura Faci, HdR, Université de Lyon, Décembre 2018 (François Charoy, président)
- Wafa Triaa, PhD, Université Grenoble Alpes, Septembre 2018 (François Charoy, rapporteur)
- Guillaume Garzone, PhD, Université de Toulouse, Novembre 2018 (François Charoy, rapporteur)
- Audrey Fertier, PhD, IMT Mines d'Albi-Carmaux, Novembre 2018 (François Charoy, rapporteur)
- Yacine Abboud, PhD, Université de Lorraine, Novembre 2018 (François Charoy, examinateur)
- Teuku Aulia Geumpana, PhD, University of New South Wales, December 2018 (François Charoy, rapporteur)

## **9.3. Popularization**

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

- Claudia-Lavinia Ignat is in charge of European affairs for Inria Nancy Grand-Est. She is the Delegate of International Relations for Inria Nancy-Grand Est and member of COST-GTRI commission. She is a member of the Inria Nancy-Grand Est COMIPERS committee. She is a member of Inria CAP Chercheurs commission. She is responsible with the activity kindergarten at AGOS Inria Nancy-Grand Est. She is a member of the organisation committee of the Security Seminar at LORIA.
- Gerald Oster is a member of the council of the scientific pole AM2I (Automatique, Mathématiques, Informatique et leurs Interactions) of University of Lorraine

## RESIST Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

Abdelkader Lahmadi: IEEE Conference on Network Softwarization (NetSoft 2018), Workshops co-chair.

Lucas Nussbaum: Grid'5000/FIT School 2018.

Jérôme François: IEEE Conference on Network Softwarization (NetSoft 2018), demonstration co-chair.

Rémi Badonnel: IEEE/IFIP Network Operations and Management Symposium (NOMS 2018), demonstration co-chair; IEEE International Conference on Networks of the Future (NOF 2018), publicity co-chair; IEEE International Symposium on Integrated Network Management (IM 2019), experience track co-chair; IFIP International Conference on Autonomous Infrastructure, Management, Security (AIMS 2018), steering committee member.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

Rémi Badonnel: IEEE/IFIP International Workshop on Analytics for Network and Service Management (AnNet 2018); IEEE/IFIP/In Coop. with ACM SIGCOMM International Conference on Network and Service Management (CNSM 2019).

Isabelle Chrisment: Member of the steering committee for RESSI'18 (Rendez-vous de la Recherche et de l'Enseignement de la Sécurité des Systèmes d'Information); IFIP, in-cooperation with ACM SIGCOMM. Network Traffic Measurement and Analysis Conference (TMA 2019).

Jérôme François: 12th International Conference on Autonomous Infrastructure, Management and Security (AIMS 2018); IEEE/IFIP international workshop on Managing and Managed by Blockchain (Man2block 2018); 5th IEEE/IFIP Workshop on Security for Emerging Distributed Network Technologies (DISSECT 2018); IEEE Workshop on Emerging Trends in Softwarized Networks (ETSN 2018)

Abdelkader Lahmadi: IEEE/IFIP international workshop on Managing and Managed by Blockchain (Man2block 2018), co-chair.

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

Rémi Badonnel: IEEE/IFIP Network Operations and Management Symposium (NOMS 2018); IEEE Conference on Network Softwarization (NetSoft 2018); IEEE/IFIP/In Assoc. with ACM SIGCOMM International Conference on Network and Service Management (CNSM 2018); IEEE Global Information Infrastructure and Networking Symposium (GIIS 2018); IEEE Global Communications Conference - SAC IoT (GLOBECOM 2018); IEEE International Conference on the Network of the Future (NoF 2018); Rencontres Francophones sur les Aspects Algorithmiques des Télécommunications (Algotel 2018).

Thibault Cholez: IEEE/IFIP International Workshop on Managing and Managed by Blockchain (Man2Block 2018); IEEE/IFIP International Workshop on Security for Emerging Distributed Network Technologies (DISSECT 2018); IFIP/IEEE International Symposium on Integrated Network Management (IM 2019).

Isabelle Chrisment: IFIP International Conference on Autonomous Infrastructures, Management and Security (IFIP AIMS'18) ; Rencontres Francophones sur la Conception de Protocoles, l'évaluation de Performance et l'Expérimentation Aspects Algorithmiques de Télécommunications (CoResl'18) ; IEEE/IFIP International Workshop on Analytics for Network and Service Management (AnNet 2018); IEEE/IFIP Network Operations and Management Symposium (NOMS 2019).

Jérôme François: IEEE/IFIP Network Operations and Management Symposium (NOMS 2018); IEEE Conference on Network Softwarization (IEEE NetSoft 2018); Principles, Systems and Applications of IP Telecommunications (IPTComm'18); 3<sup>rd</sup> Workshop on Mining Data for financial applications (MIDAS 2018).

Abdelkader Lahmadi: IEEE Conference on Network Softwarization (IEEE NetSoft 2018) ; IEEE/IFIP Network Operations and Management Symposium (NOMS 2018); 2<sup>nd</sup> Cyber Security in Networking Conference (CSNet 2018); 1st Workshop on Cryptocurrencies and Blockchains for Distributed Systems (CryBlock 2018); IEEE – 13<sup>th</sup> System of Systems Engineering Conference (SoSE 2018).

Lucas Nussbaum: International Conference on Enabling Technologies: Infrastructure for Collaborative Enterprises (WETICE 2018); European Symposium on Serverless Computing and Applications (ESSCA 2018); 15<sup>th</sup> International Conference on Mining Software Repositories (MSR 2018 – FOSS award); 10<sup>th</sup> IEEE International Conference on Cloud Computing Technology and Science (CloudCom 2018); 4<sup>th</sup> International Workshop on Serverless Computing (WoSC 2018); IEEE INFOCOM International Workshop on Computer and Networking Experimental Research Using Testbeds (CNERT 2018).

#### 10.1.2.3. Other selection activities

Rémi Badonnel served as a member of the Selection Committee for the Best Paper Awards of IEEE/IFIP/In Assoc. with ACM SIGCOMM International Conference on Network and Service Management (CNSM 2018).

Abdelkader Lahmadi served as a member of the Selection Committee of the 2018 ComSoc Student Competition "Communications Technology Changing the World".

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Rémi Badonnel: Associate Editor for the Wiley International Journal of Network Management (IJNM).

Isabelle Chrisment: Associate Editor for the IEEE Transactions on Network and Service Management (TNSM).

Jérôme François: Associate Editor for the Wiley International Journal of Network Management (IJNM); Guest Editor for a Special Issue on Security for Emerging Open Networking Technologies in the same journal.

#### 10.1.3.2. Reviewer - Reviewing Activities

Laurent Andrey: Wiley International Journal of Network Management (IJNM); Elsevier Journal on Communication Networks (COMNET).

Rémi Badonnel: IEEE Transactions on Network and Service Management (TNSM); Journal of Intelligent Manufacturing (JIMS); Journal of Network and System Management (JNSM); IEEE Communications Magazine (COMMAG).

Thibault Cholez: Elsevier Journal on Communication Networks (COMNET).

Isabelle Chrisment: Elsevier Journal Computer Communications (COMCOM).

Jérôme François: IEEE Transactions on Network and Service Management (TNSM); IEEE Journal on Selected Areas in Communications (JSAC); Elsevier Journal on Communication Networks (COMNET).

Abdelkader Lahmadi: IEEE Transactions on Network and Service Management (IEEE TNSM); Springer Journal of the Network and Systems Management (JNSM); Wiley International Journal of Network Management (IJNM).

Lucas Nussbaum: International Journal of Grid and Utility Computing (IJGUC); IEEE Transactions on Cloud Computing (TCC); Wiley Software: Practice and Experience (SPE).

#### 10.1.4. Invited Talks

Thibault Cholez:

- SDN DAY 2018, Paris. Une architecture orchestrée de microservices pour les réseaux ICN.

Jérôme François:

- Panelist at IEEE/IFIP NOMS 2018: Cognitive Management versus Privacy in a Cyber World: Collision or Opportunity?
- Inria tech talk at Station-F, Paris. AI Platform for Automated Security Testing of Connected Devices. With Abdelkader Lahmadi, Frédéric Beck and Loïc Rouch.
- ETSI NEW INTERNET FORUM at SDN NFV world congress, Managing the Security of IoT Devices out of your Control.

Abdelkader Lahmadi:

- 12<sup>th</sup> International Conference on Autonomous Infrastructure, Management and Security (AIMS 2018), Munich, Germany. Security Analysis of Internet of Things Devices [32]. With Frédéric Beck.
- Inria tech talk at Station-F, Paris. AI Platform for Automated Security Testing of Connected Devices. With Jérôme François, Frédéric Beck and Loïc
- SDN DAY 2018, Paris. Toward Self-Driving Networks: A new era of network management.

Xavier Marchal:

- Journées Cloud 2018, Troyes. Une architecture de microservices pour les réseaux ICN.

Lucas Nussbaum:

- dotScale 2018, Paris. Distributions and package management in the containers era.
- Colloque Sciences ouvertes: expériences, enjeux et perspectives, Oct 2018, Vandœuvre-lès-Nancy, France. Table ronde sur les aspects "utilisateurs" : intérêts et retours d'expériences de chercheurs et enseignants-chercheurs du site [26].

### 10.1.5. Scientific Expertise

Isabelle Chrisment served as a member of the GDR RSD/ASF selection committee for the thesis award.

Olivier Festor jointed Orange scientific council.

Jérôme François serves as reviewer for the program *Etablissement de nouveaux chercheurs et de nouvelles chercheuses universitaires du Fonds de recherche du Québec – Nature et technologies* (FRQNT)

### 10.1.6. Research Administration

Thibault Cholez is a member of the executive council of the Digitrust project (I-Site project of the Université de Lorraine to foster research on trust and security in IT).

Isabelle Chrisment is a member of the AFNIC's scientific council. She is also an elected member of the scientific pole AM2I (Automatique, Matheématiques, Informatique et leurs Interaction) at Université de Lorraine. She is a member of the COMIPERS at Inria Nancy Grand Est. She is also involved in Inria's CVP (Cellule de Veille et Prospective) and in the CMI (Commission de la Mention Informatique) board, which is a part of the doctoral school IAEM.

Olivier Festor is member of the Scientific Council of Telecom Sud Paris. He is leading the IFIP TC6 Working Group 6.6 : Network and Service Management.

Jérôme François is a member of the Horizon Startup local committee in Nancy Grand Est.

Abdelkader Lahmadi is a member of the CDT of Inria Nancy Grand Est.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Olivier Festor is the Director of the TELECOM Nancy Engineering School.

Rémi Badonnel is heading the Internet Systems and Security specialization of the 2<sup>nd</sup> and 3<sup>rd</sup> years at the TELECOM Nancy engineering school, and is coordinating the Security Pathway Program at the same school, elaborated in the context of the International Master of Science in Security of Computer Systems built with the Mines Nancy school.

Team members are teaching the following courses:

**Rémi Badonnel** 242 hours - L3, M1, M2 - Networks, Systems and Services, Software Design and Programming, Cloud Computing, Network and Security Management - TELECOM Nancy, Université de Lorraine

**Thibault Cholez** 300 hours - L3, M1, M2 - Computer Networks, Object-Oriented Programming, C Programming, Network Services, Constraint development on small Connected Objects, Mobile applications and Internet of Things, IT tools for Project Management - TELECOM Nancy, Université de Lorraine

**Isabelle Chrisment** 220 hours -L3, M1, M2 -C and Shell Programming, Computer Networking, Operating Systems, Network Security. - TELECOM Nancy, Université de Lorraine

**Jérôme François** 70 hours - M1, M2 -Network security, Big Data - TELECOM Nancy, Université de Lorraine

**Abdelkader Lahmadi** 280 hours - L3, M1, M2 - Real time and Embedded Systems Programming, Distributed Systems and Algorithms, Green IT, Algorithms and Advanced Programming, Security of Cyber Physical Systems - ENSEM Engineering School, Université de Lorraine

**Lucas Nussbaum** 200 hours - L2, Licence Pro (L3), M1 - several courses about systems administration, monitoring, virtualization, configuration management, networking, operating systems. - IUT Nancy-Charlemagne

#### **E-learning**

**MOOC** *Supervision de Réseaux et Services (Session 1)*, FUN Project, Université de Lorraine, Ingénieur, formation initiale et continue, Thibault Cholez, Rémi Badonnel, Laurent Andrey, Olivier Festor, Abdelkader Lahmadi, Jérôme François, de janvier à mars 2018, over 6400 inscriptions from 74 countries, and 370 certificates of achievement. Each MOOC Resist participant contributed to the 2018 maintenance for a second opening on January 2019.

### **10.2.2. Supervision**

PhD in progress: Ahmad Abboud, *Compressed and verifiable filtering rules in Software-defined Networking*, supervised by Michael Rusinowitch, Abdelkader Lahmadi, and Adel Bouhoula.

PhD in progress: Paul Chaignon, *Software Datapaths for Multi-Tenant Packet Processing*, supervised by Olivier Festor, Jérôme François and Kahina Lazri.

PhD in progress: Pierre-Olivier Brissaud, *Encrypted traffic analysis*, since July 2016, supervised by Isabelle Chrisment, Jérôme François and Thibault Cholez.

PhD in progress: David Espinel, *SDN solution for Massively Distributed Cloud Infrastructure*, since February 2018, supervised by Lucas Nussbaum, Adrien Lebre and Abdelhadi Chari.

PhD in progress: Adrien Hemmer, *Predictive Security Monitoring for Large-Scale Internet-of-Things*, since October 2018, supervised by Isabelle Chrisment and Rémi Badonnel.

PhD in progress: Pierre-Marie Junges, *Internet-wide automated assessment of the exposure of the IoT devices to security risks*, supervised by Olivier Festor and Jérôme François.

PhD in progress: Mingxiao Ma, *Cyber-Physical Systems defense through smart network configuration*, supervised by Isabelle Chrisment, Abdelkader Lahmadi.

PhD in progress: Xavier Marchal, *Secure operation of virtualized Named Data Networks*, since December 2015, supervised by Olivier Festor & Thibault Cholez.

PhD in progress: Abdulqawi Saif, *Open Science for the scalability of a new generation search technology*, since December 2015, supervised by Ye-Qiong Song & Lucas Nussbaum.

PhD in progress: Nicolas Schnepf, *Orchestration and Verification of Security Functions for Smart Environments*, since October 2016, supervised by Stephan Merz, Rémi Badonnel and Abdelkader Lahmadi.

PhD: Giulia De Santis, *Modeling and Recognizing Network Scanning Activities with Finite. Mixture Models and Hidden Markov Models*, Université de Lorraine, 20 December 2018, supervised by Olivier Festor and Abdelkader Lahmadi (not yet registred).

PhD: Maxime Compastié, *Software-defined Security for Distributed Clouds*, University of Lorraine, defended on December 18, 2018, supervised by Olivier Festor and Rémi Badonnel (not yet registred).

### 10.2.3. Juries

Team members participated to the following Ph.D. defense committees:

- Abdelhadi Azzouni, PhD in Computer Science from Université Pierre et Marie Curie - Sorbonne Universités, France. Title: Smart and Secure Network Softwarization, April 2018 – (Olivier Festor as reviewer).
- Lyes Bayou, Phd in Computer Science from from IMT Atlantique Bretagne-Pays de la Loire, France. Title: Evaluation et mise en oeuvre de la sécurité dans les systèmes SCADA à base de réseaux de capteurs sans fil, June 2018 – (Isabelle Chrisment as reviewer).
- Quang-Vinh Dang, Phd in Computer Science from Université de Lorraine, France. Trust assessment in large-scale collaborative systems, January 2018 – (Isabelle Chrisment as president).
- Pierre-Edouard Fabre, Phd in Computer Science from TELECOM SudParis, France. Title: Utiliser les ressources réseaux pour atténuer les attaques DDoS volumétriques, December 2018 – (Isabelle Chrisment as reviewer).
- Ghada Jaber, PhD in Computer Science from University of Toulouse, France. Title: A Content-Centric Approach for ireless Sensor Networks, December 2018 – (Olivier Festor as reviewer).
- Oualid Koucham, PhD in Automatic Control fromCommunauté Université Grenoble Alpes, France. Title: Détection d'intrusions pour les systèmes de contrôle industriels, November 2018 – (Isabelle Chrisment as reviewer).
- Alassane Samba, Phd in Computer Science from from IMT Atlantique Bretagne-Pays de la Loire, France. Title: Science des données au service des réseaux d'opérateur, October 2018 – (Isabelle Chrisment as reviewer).
- Farah Slim, PhD in Computer Science from IMT Atlantique Bretagne-Pays de la Loire, France. Title: Etude et implémentation d'algorithmes de gestion de ressources pour un système d'exploitation de réseau, March 2018 – (Olivier Festor as examiner).

## 10.3. Popularization

### 10.3.1. Interventions

- Débats Grenats, February 2018, Metz, France. Round table on the theme of security over its different forms, including risks induced by cyber-security. Rémi Badonnel.
- Libre sur la place, Nancy. Plongée au cœur des communautés De Debian à l'Open Core. Lucas Nussbaum.



## ALICE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Members of Organizing Committees

The team contributed to the “Journées Jeunes Chercheurs 2018”, organized by the GdR Informatique Mathématique.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

Bruno Lévy was program co-chair of Computer Graphics International 2018

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

Bruno Lévy was IPC member of Eurographics 2018, SGP 2018, GMP 2018

#### 9.1.2.3. Reviewer

Members of the team were reviewers for Eurographics, SIGGRAPH, SIGGRAPH Asia, Computer Aided Design, ISVC, Pacific Graphics, and SPM.

### 9.1.3. Journal

#### 9.1.3.1. Member of Editorial Boards

- B. Lévy is a member of the editorial board of ACM Transactions on Graphics.
- B. Lévy is a member of the editorial board of Graphical Models (Elsevier)
- B. Lévy is a member of the editorial board of Computer Graphics and Applications

#### 9.1.3.2. Reviewer - Reviewing Activities

Members of the team were reviewers for Computer Aided Design (CAD), Discrete Applied Mathematics (Elsevier), Transactions on Visualization and Computer Graphics (IEEE), and Computers & Graphics (Elsevier).

### 9.1.4. Invited Talks

Bruno Lévy gave an invited course at Symposium of Geometry Processing 2018 on Numerical Optimal Transport.

### 9.1.5. Popularization

Dmitry Sokolov participated in the Bett Show, one of the largest gatherings of the education community, and gave STEM popularization talk in front of a general public.

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

### **9.2.1. Teaching**

Master : Bruno Lévy, Numerical Geometry, 12h, M2, ENSG

Licence : Dobrina Boltcheva, Infographie 3D, 30h, 3A, IUT Saint-Dié-des-Vosges

Licence : Dobrina Boltcheva, Advanced Object Oriented Programming & UML, 60h, 2A, IUT Saint-Dié-des-Vosges

Licence : Dobrina Boltcheva, Advanced algorithmics, 50h, 2A, IUT Saint-Dié-des-Vosges

Licence : Dobrina Boltcheva, Image Processing, 30h, 2A, IUT Saint-Dié-des-Vosges

Licence : Dobrina Boltcheva, UML Modeling, 20h, 1A, IUT Saint-Dié-des-Vosges

Licence : Dmitry Sokolov, C++, 40h, 2A, University of Lorraine

Licence : Dmitry Sokolov, Programming, 30h, 1A, University of Lorraine

Licence : Dmitry Sokolov, Logic, 30h, 3A, University of Lorraine

Master : Dmitry Sokolov, Logic, 22h, M1, University of Lorraine

Master : Dmitry Sokolov, 3D printing, 12h, M2, University of Lorraine

Master : Dmitry Sokolov, Numerical modeling, 12h, M2, University of Lorraine

## LARSEN Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General chair, scientific chair

- Co-organized the French days for Humanoid Robotics (JNRH – “Journées Nationales de la Robotique Humanoïde”), sponsored by the GT7 of the GDR Robotics [Serena Ivaldi, Karim Bouyarmane, Pauline Maurice, Jean-Baptiste Mouret, François Charpillet]
- Co-organized an international workshop at IROS 2018 (*Assistance and Service Robotics in a Human Environment*) [Francis Colas]
- Co-organized an international workshop at IEA 2018 (*Collaborative Robotics and Ergonomics*) [Pauline Maurice, Serena Ivaldi]

#### 10.1.1.2. Member of the Organizing Committees

- Publicity chair for IEEE ARSO 2018 (Advances in Robotics and its Social Impact) [Serena Ivaldi]
- Co-organized the JFPDA2018 (“Journées Francophones sur la Planification, la Décision et l’Apprentissage pour la conduite de systèmes”) [Vincent Thomas]
- Co-organized the Robotics and Artificial Intelligence day at the JFPDA 2018 [Serena Ivaldi]

### 10.1.2. Special issues

- Co-edited a special issue about “Human-Robot Interaction” in ERCIM News [Serena Ivaldi].

### 10.1.3. Scientific Events Selection

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

- Associate Editor for IEEE Humanoids 2018 [Serena Ivaldi]
- Robotics Science and Systems (RSS) [Serena Ivaldi]
- ALIFE 2018 (European Conference on Artificial Life) [Amine Boumaza, Jean-Baptiste Mouret]
- EVO\* 2018 (EvoStar) [Jean-Baptiste Mouret]
- GECCO2018 (Genetic and Evolutionary Computation Conference) [Amine Boumaza, Jean-Baptiste Mouret]
- CEC 2018 (Congress on Evolutionary Computation) [Amine Boumaza]
- ICAART 2018(International Conference on Agents and Artificial Intelligence)[François Charpillet]
- IJCAI-ECAI 2018 (International Joint Conference on Artificial Intelligence and European Conference on Artificial Intelligence [François Charpillet]
- AAAI 2019 (AAAI Conference on Artificial Intelligence) [François Charpillet]

#### 10.1.3.2. Reviewer for Peer-reviewed Conferences

- CoRL (Conference on Robot Learning) [Jean-Baptiste Mouret, Konstantinos Chatzilygeroudis]
- ICRA 2019 (2019 IEEE International Conference on Robotics and Automation) [Karim Bouyarmane, Francis Colas, Serena Ivaldi, Jean-Baptiste Mouret]
- IJCAI ECAI 2018 (27th International Joint Conference on Artificial Intelligence and the 23rd European Conference on Artificial Intelligence) [Francis Colas, Vincent Thomas]
- IROS 2018 (IEEE/RSJ International Conference on Intelligent Robots and Systems) [Karim Bouyarmane, Francis Colas, Jean-Baptiste Mouret]

- HUMANOIDS 2018 (IEEE/RSJ International Conference on Humanoid Robots) [Francis Colas]
- IEEE ARSO 2018 (Advanced Robotics and its Social Impact) [Serena Ivaldi]

#### **10.1.4. Journal**

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

- IEEE Robotics and Automation Letters [Serena Ivaldi, associate editor]
- Frontiers in AI and Robotics [Amine Boumaza, Serena Ivaldi, Jean-Baptiste Mouret]

##### *10.1.4.2. Reviewer - Reviewing Activities*

- Journal of Field Robotics [Francis Colas]
- Robotics and Automation Letters [Francis Colas]
- IEEE Robotics and Automation Letters [Jean-Baptiste Mouret, Serena Ivaldi]
- IEEE Transactions on Robotics [Serena Ivaldi]
- Autonomous Robots [Serena Ivaldi]
- CEAS Aeronautical Journal [Alexis Scheuer]

#### **10.1.5. Scientific expertise**

- Serena Ivaldi evaluated a project for the Université Libre de Bruxelles.

#### **10.1.6. Invited Talks**

- Jean-Baptiste Mouret gave a keynote at the CONTROLO 2018 conference (13th APCA International Conference on Automatic Control and Soft Computing, in Ponta Delgada, São Miguel Island, Azores, Portugal), and invited talks at the IEEE ICRA 2018 workshop “Self-healing, Growing and Evolving Soft Robots” (Brisbane, Australia), the IEEE ICRA 2018 workshop “Autonomous Robot Design”, the Frontiers Research and Artificial Intelligence Workshop organized by the ERC (Bruxelle, Belgium), the German-French Conference on Humanoids and Legged Robots (Munich, Germany), the French Academy of Science and Leopoldina symposium “Data Science versus Motion Intelligence” (Paris, France), the Workshop on Learning Applications for Intelligent Autonomous Robots organized at the IAS 15 Conference (Baden Baden, Germany), as well as at Uber AI labs (San Francisco, California), the Advanced Telecommunications Research (ATR, near Kyoyo, Japan), and Safran R&D (Saclay, France).
- Serena Ivaldi gave an invited talk at the Workshop on Learning Applications for Intelligent Autonomous Robots organized at the IAS 15 Conference (Baden Baden, Germany) and at the atelier santé of the Journée Federation Charles Hermite (Nancy).
- Adrien Malaisé gave an invited talk at IEEE ARSO 2018 (Genova, Italy).

#### **10.1.7. Research administration**

- Francis Colas is member of the local commissions:
  - “Commission des Utilisateurs des Moyens Informatiques” (CUMI),
  - “Commission de Développement Technologique” (CDT),
  - “Comité du Centre Inria Nancy Grand-Est”,
  - “bureau de la Commission de la Mention Informatique” (CMI) of the IAEM doctoral school.
- Serena Ivaldi was a member of the committee for the researcher selection at Inria Nancy Grand Est (Jury CR),
- François Charpillat was a member of the committee for professor selection at Université Technologique de Troyes (PR LM2S No 4049 “Traitement du signal”),
- François Charpillat was a member of the HCERES committee for U2IS,

- François Charpillet is member of the scientific council of the GDR Robotics.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Pauline Maurice, “Analyse du comportement”, 16 eq. TD, M2 “Sciences Cognitives”, Univ. Lorraine, France

Master: Francis Colas, “Robotique Autonome”, 18h eq. TD, M2 “Systèmes Interactifs et Robotiques”, CentraleSupélec, France.

Master: Francis Colas, “ROS”, 6h eq. TD, M1, Mines de Nancy, France.

Master: Francis Colas, “Planification de trajectoires”, 12h eq. TD, M2 “Apprentissage, Vision, Robotique”, Univ. Lorraine, France.

Master : Vincent Thomas, “Apprentissage numérique”, 15h eq. TD, M2, Université de Lorraine, France.

Master : Vincent Thomas, “Optimisation et métaheuristique”, 15h eq. TD, M1, Université de Lorraine, France.

Master : Vincent Thomas, “Game Design”, 16h eq. TD, M1, Université de Lorraine, France.

Master : Vincent Thomas, “Agents intelligents et collectifs”, 16h eq. TD, M1, Université de Lorraine, France.

Master : Vincent Thomas, “Serious Game”, 12h eq. TD, M2, Université de Lorraine, France.

Master : Alexis Scheuer, “Vie artificielle”, 22,5h eq. TD, M2, CentraleSupélec, France.

Master : Alexis Scheuer, “Introduction à la robotique mobile”, 30h eq. TD, M1, Université de Lorraine, France.

Master : Alexis Scheuer, “Boucle sensori-motrice et comportement autonome”, 15h eq. TD, M2, Université de Lorraine, France.

Master : Alexis Scheuer, “Modélisation et commande en robotique”, 16h eq. TD, M2, Université de Lorraine, France.

### 10.2.2. Supervision

PhD: Konstantinos Chatzilygeroudis, 14 Dec. 2018, “*Micro-Data Reinforcement Learning for Adaptive Robots*”, started in Oct. 2015, Jean-Baptiste Mouret (advisor).

PhD: Oriane Dermay, 17 Dec. 2018, “*Prédiction de l'intention: du geste au mouvement corps complet*”, started Oct. 2015, François Charpillet (advisor), Serena Ivaldi

PhD in progress: Waldez Avedo Gomes Junior, “*Intelligent Collaboration between Humans and Robots*”, started in Oct. 2018, Jean-Baptiste Mouret (advisor), Serena Ivaldi

PhD in progress: Rituraj Kaushik, “Fast adaptation to damage by exploiting trajectory data”, started in Oct. 2016, Jean-Baptiste Mouret (advisor).

PhD in progress: Adam Gaier, “*Optimisation aerodynamic design through illumination of surrogate models*”, started in June 2017, Jean-Baptiste Mouret (advisor), Alexander Asteroth.

PhD in progress: Vladislav Tempez, “*Apprentissage data-efficace de lois de commandes pour robots volants*”, started in Sept. 2018, Jean-Baptiste Mouret (advisor).

PhD in progress: Adrien Malaisé, “*Capteurs portés dans la robotique collaborative : de l'apprentissage du mouvement humain à l'acceptabilité de cette technologie*”, started in January 2017, Francis Colas (advisor), Serena Ivaldi.

PhD in progress: Jérôme Truc, “*Apprentissage de comportement et interactions prédictives pour un robot d'assistance en environnement structuré*”, started in September 2018, Francis Colas (advisor).

PhD in progress: Yassine El Khadiri, “*Apprentissage automatique pour l’assistance à l’autonomie à domicile*”, started in September 2018, François Charpillet(advisor).

PhD in progress: Eloise Zehnder, “*Interaction entre technologie et personnes âgées : adaptabilité et acceptabilité des technologies d’assistance (AT) à domicile*”, François Charpillet, Jérôme Dinet (advisors).

### **10.2.3. Juries**

- Francis Colas was a reviewer for the PhD of Marie-Lou Barnaud (Univ. Grenoble Alpes).
- Serena Ivaldi was a reviewer for the PhD of Pavan Kanajar (Italian Institute of Technology, Italy).
- François Charpillet was a reviewer for the PhD of Nicolas Duminy (Univ. Bretagne Sud),
- François Charpillet was a reviewer for the PhD of Aurélien Massein (Univ. Côte d’Azur),
- François Charpillet was a reviewer for the PhD of Jules Waldhart (Univ. Fédérale Toulouse Midi-Pyrénées),
- François Charpillet was a reviewer for the PhD of Farhood Negin (Univ. Côte d’Azur),
- François Charpillet was a reviewer for the PhD of Mathieu Lelerre (Univ. Normandie),
- François Charpillet was a reviewer for the HDR of Dominique Vaufreydaz (Univ. Grenoble Alpes).

## **10.3. Popularization**

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

- Amine Boumaza is a member of the editorial board of “Interstice”.

### **10.3.2. Articles and contents**

- Jean-Baptiste Mouret gave interviews for France Culture (radio), France 3 Lorraine (TV), and Socialter (printed magazine)
- François Charpillet gave an interview which gave an article on Re.Med. La revue de la Recherche Médicale du CHRU de Nancy.

### **10.3.3. Education**

- Vincent Thomas was member of the organization comitee of the “24h des DUT informatique” event (Nancy, 2018) and organized the Artificial Intelligence competition during the event (218 students from 25 DUT of computer science).
- Serena Ivaldi is in the scientific committee for the robotics exhibition at the “Cité des sciences et de l’industrie” in Paris (starting in April 2019).
- Serena Ivaldi presented our activities in robotics at the Lycée Henri Loritz in Nancy

### **10.3.4. Interventions**

- Public workshop on robot programming with Thymio for the Ada Lovelace Day [Alexis Scheuer]
- Public workshop on robot programming with Thymio at “Fête de la Science” [Alexis Scheuer, Olivier Rochel, Francis Colas]
- The team showed demonstrations for the Ada Lovelace Day (around 20 female students)
- Participated to a panel at the “Forum des Sciences Cognitives” (Nancy, France) [Jean-Baptiste Mouret]
- Tutorials on “physics simulation” and “path planning” for teachers during “journées ISN-EPI” (Nancy, France) [Vincent Thomas]

### **10.3.5. Internal action**

- Jean-Baptiste Mouret gave a talk for the Colloquium organied by LORIA

## MAGRIT Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

- Fabien Pierre co-organized an ICPR satellite Workshop on Reproducible Research in Pattern Recognition (RRPR 2018, Beijing, China).

### 9.1.2. Scientific Events Selection

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

- M.-O. Berger was a member of the program committee of: International Conference on Robotic and automation (ICRA 2018), International Conference on Information Processing in Computer assisted interventions (IPCAI 2018), International Conference on Robotics and Automation (IROS 2018), International Symposium on Mixed and Augmented Reality (ISMAR 2018), International Conference on Pattern Recognition (ICPR 2018).
- Erwan Kerrien was a member of the program committee of MICCAI 2018.
- G. Simon was a member of the program committee of IEEE VR 2019 and IEEE ISMAR 2018
- F. Sur was a member of the program committee of RFIAP 2018 ( Reconnaissance des formes, image, apprentissage et perception)

### 9.1.3. Journal

#### 9.1.3.1. Reviewer - Reviewing Activities

The members of the team reviewed articles in IEEE Transactions on Visualization and Computer Graphics, IEEE Transaction on Image Processing, MDPI Journal of Imaging, Image Processing On Line, Computer Methods and Programms in Biomedicine, Medical Image Analysis.

### 9.1.4. Invited Talks

- Fabien Pierre gave a talk during a one-day workshop organized in Paris in november 2018 by GDR ISIS. Title : *Géométrie et représentation de la couleur*.
- Pierre-Frederic gave a seminar at the department of information technology of Uppsala University on May 30th. Title: ' Mitral Valve Biomechanical Model Construction ' [http://user.it.uu.se/~maya/seminar\\_abstracts/sem\\_spring18/PFVillard.html](http://user.it.uu.se/~maya/seminar_abstracts/sem_spring18/PFVillard.html).
- Daryna Pancheva gave a talk at the Harvard Biorobotics Lab on November 19th. Title: 'Automatic Segmentation of Mitral Valve Chordae'.
- Pierre-Frederic Villard gave a talk at the Harvard Biorobotics Lab on November 26th. Title: 'Mitral Valve modeling: from CT scan to FEM model'.

### 9.1.5. Scientific Expertise

- Marie-Odile Berger is the president of the Association française pour la reconnaissance et l'interprétation des formes (AFRIF).
- Gilles Simon was reviewers for two CIFRE grant proposals (ANR).

### 9.1.6. Research Administration

- Marie-Odile Berger is a member of the Inria evaluation committee. She was scientific referent for the Evaluation Seminar “Vision, perception and multimedia interpretation”.
- Gilles Simon is Chargé de Mission Loria to take part in an EIT’s KIC (Knowledge and Innovation Communities) proposal in the thematic of manufacturing (KIC Added-value Manufacturing).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

The assistant professors of the MAGRIT team actively teach at Université de Lorraine with an annual number of around 200 teaching hours in computer sciences, some of them being accomplished in the field of image processing. Inria researchers have punctual teaching activities in computer vision and shape recognition mainly in the computer science Master of Nancy and in several Engineering Schools near Nancy (ENSMN Nancy, SUPELEC Metz, ENSG). Our goal is to attract Master students with good skills in applied mathematics towards the field of computer vision.

The list of courses given by staff members which are related to image processing and computer vision is detailed below:

- M.-O. Berger
  - Master : Shape recognition, 15 h, Université de Lorraine.
  - Master : Introduction to image processing, 12 h, École des Mines de Nancy .
  - Master : Image processing for Geosciences, ENSG, 12h.
- E. Kerrien
  - Master : Introduction to image processing, 15 h, École des Mines de Nancy.
- Fabien Pierre
  - Licence: Introduction to image processing and compression, 30h, IUT Saint-Dié des Vosges.
- G. Simon
  - Master: Augmented reality, 24 h, Télécom-Nancy.
  - Master : Augmented reality, 24h, M2 IHM Metz.
  - Master : Augmented reality, 3 h, SUPELEC Metz.
- F. Sur
  - Master: Introduction to machine learning, 50 h, Université de Lorraine.
  - Master : Introduction to signal processing and applications, 21 h, Ecole des Mines de Nancy.
- P.-F. Villard
  - Licence: 3D programming, 16h, IUT Saint-Dié des Vosges.
  - Licence: Game design with Unity3D , 15h, IUT Saint-Dié des Vosges.
  - Licence: Introduction to augmented reality, 4h, IUT Saint-Dié des Vosges.
  - Master : Augmented and Virtual Reality, 16h, M2 Cognitive Sciences and Applications, Institut des Sciences du Digital, Université de Lorraine.

Frédéric Sur was the head of the Industrial Engineering and Applied Mathematics department at Mines Nancy until August 2018.



### 9.2.2. Supervision

PhD: Antoine Fond, Introduction de sémantique dans la modélisation urbaine dans un contexte de calcul du point de vue, octobre 2014, Marie-Odile Berger, Gilles Simon. PhD defended in avril 2018.

PhD in progress: Jaime Garcia Guevara, Vers une utilisation clinique de la réalité augmentée pour la chirurgie hépatique, octobre 2015, Marie-Odile Berger, Stéphane Cotin (MIMESIS).

PhD in progress: Raffaella Trivisonne, Image-guided real-time simulation using stochastic filtering, novembre 2015, Erwan Kerrien, Stéphane Cotin (MIMESIS).

PhD in progress: Vincent Gaudillière, Reconnaissance de lieux et d'objets pour la réalité augmentée en milieux complexes, décembre 2016, Marie-Odile Berger, Gilles Simon.

PhD in progress: Daryna Panicheva, Image-based Biomechanical Simulation of Mitral Valve Closure, octobre 2017, Marie-Odile Berger, Pierre-Frédéric Villard.

### 9.2.3. Juries

- Marie-Odile Berger was external reviewer of the PhD of Philippe-Antoine Gohard (Univ. Toulouse), Guillaume Cortes (Univ. Rennes), Giang Nguyen (Univ Paris-Est) and of the HdR of Céline Fouard (Univ. Grenoble). She was examiner of the PhD of Nader Mamoud (Univ. Saragosse) and Alexandre Morgand (Univ. Clermont-Ferrand).
- Erwan Kerrien was external reviewer of the PhD of Mohammad Rezza Maddah (IMT Atlantique and Wright State University).

## 9.3. Popularization

Members of the team participate on a regular basis, to scientific awareness and mediation actions.

### 9.3.1. Internal or external Inria responsibilities

Erwan Kerrien is Chargé de Mission for scientific mediation at Inria Nancy-Grand Est, and thereby is part of the Inria scientific mediation network. As such, he is a member of the steering committee of "la Maison pour la Science de Lorraine"<sup>0</sup>, and member of the IREM<sup>0</sup> steering council. He also serves as the academic referent of an IREM working group aiming at introducing computer science in lower and upper secondary school curricula.

### 9.3.2. Articles and contents

Erwan Kerrien was interviewed for a special edition of the journal of Nancy University Hospital about AI in medicine.

### 9.3.3. Education

- Gilles Simon participated to the "Fête de la science 2018" at the Faculté des Sciences et Technologies of the Université de Lorraine. He presented unplugged activities of computer science.
- Pierre-Frédéric Villard participated to open days and science festival in the IUT of Saint-Dié des Vosges. He presented augmented and virtual reality demos and their link to the high school mathematics program.
- Erwan Kerrien participated in the creation of a MOOC for teachers of the new ICN option (Informatique et Création Numérique - *Computer Science and Digital Creation*) at the beginning of high school curriculum (see <https://www.fun-mooc.fr/courses/inria/41014/session01/info>). This MOOC is part of the Class'Code project (<https://pixees.fr/classcode-v2>). During the year, he took his part in the animation and participated in the evolution of this MOOC to adapt to the new SNT

<sup>0</sup>"Houses for Science" project, see <http://maisons-pour-la-science.org/en>

<sup>0</sup>Institut de Recherche sur l'Enseignement des Mathématiques - *Research Institute for Teaching Mathematics*

class (Sciences du Numérique et Technologie - *Digital Science and Technology*) that generalizes ICN, and is included in the 1st year core curriculum in upper secondary education.

He also participated in the creation and teaching, of a 5-day training course for scientific animators (in a broad sense, from science club animators to science teachers). This course was funded by Région Lorraine (see <https://fan.loria.fr>).

He gave a 2-day course about the use of unplugged computer science to introduce computer science in science class, along with another researcher and 2 secondary school maths teachers. This course has been organized with Maison pour la Science since 2015, and is proposed to around 20 maths and science secondary school teachers each year.

#### **9.3.4. Interventions**

- Gilles Simon was invited to participate in a round table on geomatics as part of the Saint-Dié-des-Vosges Geography Festival.
- Erwan Kerrien was an associate researcher to a MATH.en.JEANS workshop within Loritz high school in Nancy. He was also part of the organizing committee of the MATH.en.JEANS conference that took place in Nancy, and gathered around 500 pupils and teachers from North-East France, Belgium and Romania. He also proposed computer science unplugged activities to secondary school pupils, especially when around 100 girls were welcome in the Inria Nancy-Grand Est center to celebrate the Ada Lovelace Day.

## MFX Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

Sylvain Lefebvre co-organized the first multidisciplinary workshop on academic research in additive manufacturing within the Lorraine area, which hosted 70 participants over two days. The two days workshop started on May 31, 2018 at Inria-Nancy Grand Est and was co-organized with Sandrine Hoppe (LRGP), Samuel Kenzari (IJL) and Hakim Boudaoud (ERPI). See <https://www.inria.fr/centre/nancy/agenda/workshop-fa>.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of Conference Program Committees

- Samuel Hornus was on the program committee for the “short papers track” at Eurographics.
- Jonàs Martínez was on the program committee of Pacific Graphics and the “short papers track” at Eurographics.
- Sylvain Lefebvre is on the advisory board of the technical paper committee of EUROGRAPHICS 2019.

#### 9.1.2.2. Reviewer

Jonàs Martínez and Sylvain Lefebvre were reviewers for SIGGRAPH and SIGGRAPH Asia.

### 9.1.3. Journal

#### 9.1.3.1. Reviewer - Reviewing Activities

- Samuel Hornus did some reviewing for ACM Transactions on Graphics and Computer Graphics Forum.
- Jonàs Martínez was reviewer of Computer Aided Geometric Design (Elsevier) and Transactions on Visualization and Computer Graphics (IEEE).

### 9.1.4. Invited Talks

Jonàs Martínez gave an invited talk in Journées Scientifiques Inria 2018.

Sylvain Lefebvre gave a one hour class at the 2018 SPG Graduate School (<https://sgp2018.sciencesconf.org/resource/page/id/7>). He was keynote speaker at the WCCM workshop *Expanding the Frontiers of Engineering Design using Computation* ([http://www.wccm2018.org/MS\\_1407](http://www.wccm2018.org/MS_1407)). Sylvain also gave an invited talk at the JIGS (*Journées Informatique et Géométrie 2018*, June 21-22).

### 9.1.5. Scientific Expertise

Sylvain Lefebvre participated in a strategy meeting at ANRT on the topic of 4D printing, on November 12, 2018.

### 9.1.6. Research Administration

Samuel Hornus leads the local “Commission du Développement Technologique.” Sylvain Lefebvre joined the Inria center *bureau du comité des projets* (BCP) in November.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

École d'ingénieur : Samuel Hornus, Mathématiques pour l'informatique, 32 HeqTD, niveau L1, Télécom Nancy, France.

Master 1: Jonàs Martínez, Infographie, 24 HeqTD, Université de Lorraine, France.

Master 1: Jonàs Martínez, Introduction au parallélisme de données, 12 HeqTD, Université de Lorraine, France.

PhD School: Jonàs Martínez, International School on Graphics and Geometry Processing for Digital Manufacturing, 3h, Italy.

École d'ingénieur : Cédric Zanni, Informatique 1, 20h ETD, niveau L3, École des Mines de Nancy, France.

École d'ingénieur : Cédric Zanni, Informatique 2, 27.5h ETD, niveau L3, École des Mines de Nancy, France.

École d'ingénieur : Cédric Zanni, Introduction au Parcours Information et Systèmes 13.5h ETD, niveau L3, École des Mines de Nancy, France.

Master: Cédric Zanni, Software Engineering, 20h ETD, M1, École des Mines de Nancy, France.

Master: Cédric Zanni, Operating System, 12h ETD, M1, École des Mines de Nancy, France.

Master: Cédric Zanni, Introduction au C/C++, 27h ETD, M1, École des Mines de Nancy, France.

Master: Cédric Zanni, Techniques de l'animation et du jeu vidéo, 27h ETD, M1, École des Mines de Nancy, France.

Master: Sylvain Lefebvre, Programmation pour le jeu vidéo, 12h ETD, École des Mines de Nancy, France.

Master: Sylvain Lefebvre, Introduction au parallélisme et au graphisme, 9h ETD, ENSG Nancy, France.

Master: Sylvain Lefebvre, Introduction à la fabrication additive, 9h ETD, ENSEM Nancy, France.

### 9.2.2. Supervision

PhD in progress : Thibault Tricard, *Multi-material microstructures*, started in October 2018, co-advised by Sylvain Lefebvre and Didier Rouxel (Institut Jean Lamour).

PhD in progress : Jimmy Etienne, *Curved additive manufacturing*, started in September 2018, co-advised by Sylvain Lefebvre and Cédric Zanni.

PhD in progress : Semyon Efremov, *Stochastic procedural microstructures: 3D modeling and analysis*, started in October 2018, co-advised by Jonàs Martínez and Sylvain Lefebvre.

### 9.2.3. Juries

Sylvain Lefebvre was reviewer for the HdR thesis of Basile Sauvage (ICube, Strasbourg, France). He also served on the mid-PhD juries of Pascal Guehl (Icube) and Tim Kuipers (TU-Delft).

## 9.3. Popularization

### 9.3.1. Ada Lovelace Day

In the context of the Ada Lovelace Day, 9th October 2018, Noémie Vennin received about twenty young girls in our 3D printer room. The Ada Lovelace Day is an international celebration of the achievements of women in science, technology, engineering and maths (STEM). It aims to increase the profile of women in these fields and, in doing so, create new role models who will encourage more girls into STEM careers and support women already working in.



Figure 11. Ada Lovelace Day at MFX Team.

### 9.3.2. IceSL Event for non-academic users

The IceSL event was held on February 22, 2018 in Paris. The objective was to bring together our community as well as new users. We invited external users, industrial partners and FabLabs at large (through national mailing lists).

The program (<https://www.weezevent.com/icesl>) involved training with the software (by all the IceSL team members, 6 sessions in total), then we had our most experienced users present advanced use of IceSL: advanced modeling with implicit volumes by Loic Fejoz, modeling of orthopedic braces by Pierre Alexandre Hugron, the making-of of a complex table with our partner Creative Industry. We finally had a social event with an exhibition of our best parts.

The gathering was a success, with 50 attendees – the maximum we could host – from a variety of backgrounds (makers and industry). Following the event we saw a clear growth in the interest around the software, with a tripled visit rate to our website and a steep increase in downloads (25% additional downloads since then). The French IceSL community is especially active, with 15% of our total visits, just after the United States (23%).

We are scheduled to repeat this event (in a more compact format) in March 2019 at Station F, in Paris.

## **MULTISPEECH Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific Events Organisation***

#### *10.1.1.1. General Chair, Scientific Chair*

Elected chair, Steering Committee of the Latent Variable Analysis and Signal Separation (LVA/ICA) conference series (E. Vincent)

General co-chair, 5th CHiME Speech Separation and Recognition Challenge, September 2018 (E. Vincent)

General co-chair, 5th International Workshop on Speech Processing in Everyday Environments, Hyderabad, India, September 2018 (E. Vincent)

Area chair, Latent Variable Analysis and Signal Separation (LVA/ICA), July 2018 (A. Deleforge)

Area Chair, INTERSPEECH, September 2018 (D. Jouvét)

Co-chair, special session “Geometry-Aware Auditory Scene Analysis” at ICASSP, April 2018 (A. Deleforge)

Co-chair, special session “Advances in Phase Retrieval and Application” at LVA/ICA, July 2018 (A. Deleforge)

Co-chair, special session “Distant speech processing for smart speakers” at EUSIPCO, September 2018 (R. Serizel)

Chair, IEEE signal processing cup (SPCup), 2019 (A. Deleforge)

#### *10.1.1.2. Member of Organizing Committees*

Steering Committee of the Detection and Classification of Acoustic Scenes and Events (DCASE) challenge series (E. Vincent)

Organizing Committee of Automatic Speaker Verification Spoofing and Countermeasures Challenge 2019 (ASVspoof 2019) (M. Sahidullah)

Organizing Committee of the DCASE challenge series, 2018 (R. Serizel)

### ***10.1.2. Scientific Events Selection***

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

Review chair, IEEE Technical Committee on Audio and Acoustic Signal Processing, responsible for organizing the review of the 443 papers submitted to the 2019 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) in the general AASP domain (E. Vincent)

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

Plate-Forme Intelligence Artificielle (PFIA), July 2018 (A. Bonneau, S. Ouni, R. Serizel)

International Conference on Multimedia and Network Information Systems (MISSI), September, 2018 (D. Jouvét)

International Conference on Speech and Computer (SPECOM), September 2018 (D. Jouvét)

International Conference on Text, Speech, and Dialogue (TSD), September 2018 (D. Jouvét)

#### *10.1.2.3. Reviewer*

ACLing 2018 - Arabic Computational Linguistics series (D. Jouvét)

APSIPA ASC 2018 - Asia-Pacific Signal and Information Processing Association - Annual Summit and Conference (M. Sahidullah)  
 CHiME 2018 - International Workshop on Speech Processing in Everyday Environments (E. Vincent)  
 EUSIPCO 2018 - European Signal Processing Conference (D. Juvet, M. Sahidullah, R. Serizel)  
 ICASSP 2018 - IEEE International Conference on Acoustics, Speech and Signal Processing (A. Deleforge, I. Illina, D. Juvet, S. Ouni, R. Serizel, E. Vincent)  
 ICPR 2018 - International Conference on Pattern Recognition (M. Sahidullah)  
 INTERSPEECH 2018 (A. Bonneau, I. Illina, S. Ouni, M. Sahidullah, E. Vincent)  
 IROS 2018 - International Conference on Intelligent Robots (A. Deleforge)  
 IWAENC 2018 - International Workshop on Acoustic Signal Enhancement (E. Vincent)  
 JEP 2018 - Journées d'Etudes sur la Parole (A. Bonneau, Y. Laprie, S. Ouni)  
 LVA/ICA 2018 - International Conference on Latent Variable Analysis and Signal Separation (E. Vincent)  
 MISSI 2018 - International Conference on Multimedia and Network Information Systems (D. Juvet)  
 Speaker Odyssey 2018 - The Speaker and Language Recognition Workshop (M. Sahidullah)  
 SPECOM 2018 - International Conference on Speech and Computer (D. Juvet)  
 SPEECH PROSODY 2018 (A. Bonneau, A. Deleforge, D. Juvet)  
 SLT 2018 - IEEE Spoken Language Technology Workshop (D. Juvet, M. Sahidullah, I. Illina)

### **10.1.3. Journal**

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

Speech Communication (D. Juvet)  
 Speech Communication, special issue on Realism in Robust Speech and Language Processing (E. Vincent)  
 EURASIP Journal on Audio, Speech, and Music Processing (Y. Laprie)

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

Computers in Biology and Medicine (M. Sahidullah)  
 Computer Speech & Language (M. Sahidullah)  
 Digital Signal Processing (M. Sahidullah)  
 Expert Systems With Applications (M. Sahidullah)  
 IEEE Access (M. Sahidullah)  
 IEEE/ACM Transactions on Audio, Speech, and Language Processing (A. Deleforge, M. Sahidullah, R. Serizel)  
 IEEE Journal of Selected Topics in Signal Processing (A. Deleforge, R. Serizel)  
 IEEE Signal Processing Letters (A. Deleforge, M. Sahidullah)  
 IEEE Transactions on Emerging Topics in Computational Intelligence (R. Serizel)  
 IEEE Transactions on Multimedia (S. Ouni)  
 Jasa Express Letters (Y. Laprie)  
 Journal of the Acoustical Society of America (Y. Laprie, S. Ouni)  
 Language Resources and Evaluation (S. Ouni)  
 Signal Processing Letters (D. Juvet)  
 Speech Communication (A. Deleforge, M. Sahidullah)

#### **10.1.4. Invited Talks**

Deep learning for distant-microphone speech enhancement and recognition, Facebook AI Research, Paris, January 2018 (E. Vincent)

Multidimensional and multi-level learning of music structure for machine improvisation in the DYCI2 project, University Pompeu Fabra, Spain, February 2018 (E. Vincent)

Des difficultés aux troubles de l'apprentissage de la lecture – Impact sur l'estime de soi. Canopé, Nancy, February 2018 (A. Piquard-Kipffer)

A brief introduction to deep learning and its application to multichannel speech enhancement, Laboratoire des systèmes perceptifs, Paris, March 2018 (R. Serizel)

Speaker embeddings: from i-vector to x-vector and beyond in summer school on Machine Learning Applied to Speech Technology and Autonomous Agents, University of Eastern Finland, Finland, August 2018 (M. Sahidullah)

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

Elected chair, ISCA Special Interest Group on Robust Speech Processing, until September 2018 (E. Vincent)

Secretary/Treasurer, executive member of AVISA (Auditory-VISual Speech Association), an ISCA Special Interest Group (S. Ouni)

#### **10.1.6. Scientific Expertise**

Expertise of ANR project proposals (Y. Laprie)

Expertise of an ASTRID proposal (R. Serizel)

Expertise of a Netherlands Orgaanisnisation for Scientific Research (NWO) proposal (R. Serizel)

Member of an expertise Committee for specific language disabilities (MDPH 54) (A. Piquard-Kipffer)

#### **10.1.7. Research Administration**

Head of the AM2I Scientific Pole of Université de Lorraine (Y. Laprie)

Vice Scientific Deputy of Inria Nancy - Grand Est (E. Vincent)

Member of Management board of Université de Lorraine (Y. Laprie)

Member of the Comité Espace Transfert of Inria Nancy - Grand Est (E. Vincent)

Member of the HCERES committee for the Laboratoire Psychologie de la Perception (E. Vincent)

Member of the HCERES committee for the LIMSI laboratory (D. Jouvét)

Vice-chair of the recrutement jury for an Associate Professor, Polytech Nancy (E. Vincent)

Member of the national recruitment jury for Inria Junior Research Scientists (E. Vincent)

Member of the Commission du personnel scientifique of Inria Nancy - Grand Est (R. Serizel)

Member of the Commission développement technologique of Inria Nancy - Grand Est (R. Serizel)

Member of "Commission paritaire" of Université de Lorraine (Y. Laprie)

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

### **10.2.1. Teaching**

DUT: I. Illina, Programming in Java, 150 hours, L1, University of Lorraine, France

DUT: I. Illina, Linux System, 65 hours, L1, University of Lorraine, France

DUT: I. Illina, Supervision of student projects and stages, 50 hours, L2, University of Lorraine, France



- DUT: S. Ouni, Programming in Java, 24 hours, L1, University of Lorraine, France
- DUT: S. Ouni, Web Programming, 24 hours, L1, University of Lorraine, France
- DUT: S. Ouni, Graphical User Interface, 96 hours, L1, University of Lorraine, France
- DUT: S. Ouni, Advanced Algorithms, 24 hours, L2, University of Lorraine, France
- DUT: R. Serizel, Computer science basics, 90 hours, L1, University of Lorraine, France
- DUT: R. Serizel, Introduction to office software applications, 18 hours, L2, University of Lorraine, France
- DUT: R. Serizel, Multimedia and web applications, 20 hours, L1, University of Lorraine, France
- DUT: R. Serizel, Multimedia content indexing, 20 hours, L2, University of Lorraine, France
- Licence: A. Bonneau, Phonetics, 17 hours, L2, Ecole d'audioprothèse, University of Lorraine, France
- Licence: A. Bonneau, Speech manipulations, 2 hours, L1, Ecole d'orthophonie, University of Lorraine, France
- Licence: V. Colotte, C2i - Certificat Informatique et Internet, 50 hours, L1, University of Lorraine, France
- Licence: V. Colotte, System, 45 hours, L3, University of Lorraine, France
- Licence: O. Mella, Introduction to Web Programming, 30 hours, L1, University of Lorraine, France
- Licence: O. Mella, Computer Networking, 98 hours, L2-L3, University of Lorraine, France
- Licence: A. Piquard-Kipffer, Education Science, 32 hours, L1, Département d'Orthophonie, University of Lorraine, France
- Licence: A. Piquard-Kipffer, Learning to Read, 34 hours, L2, Département d'Orthophonie, University of Lorraine, France
- Licence: A. Piquard-Kipffer, Dyslexia, Dysorthographia, 12 hours, L3, Département d'Orthophonie, University of Lorraine, France
- Licence: A. Piquard-Kipffer, Mathematics Didactics, 9 hours, L3, Département d'Orthophonie, University of Lorraine, France
- Master: V. Colotte, Introduction to Speech Analysis and Recognition, 18 hours, M1, University of Lorraine, France
- Master: V. Colotte, Integration project: multimodal interaction with Pepper, 10 hours, M2, University of Lorraine, France
- Master: D. Jouvét, Speech recognition, 12 hours, M2 University of Lorraine, France
- Master: D. Jouvét and S. Ouni, Multimodal oral communication, 24 hours, M2, University of Lorraine, France
- Master: Y. Laprie, Analysis, perception and automatic recognition of speech, 30 hours, M1, University of Lorraine, France
- Master: O. Mella, Computer Networking, 76 hours, M1, University of Lorraine, France
- Master: S. Ouni, Multimedia in Distributed Information Systems, 31 hours, M2, University of Lorraine, France
- Master: E. Vincent and T. Biasutto-Lervat, Neural networks, 38 hours, M2, University of Lorraine
- Master: A. Piquard-Kipffer, Dyslexia, Dysorthographia diagnosis, 6 hours, M1, Département d'Orthophonie, University of Lorraine, France
- Master: A. Piquard-Kipffer, Deaf people and reading, 21 hours, Département d'Orthophonie, University of Lorraine, France
- Master: A. Piquard-Kipffer, Psycholinguistics, 20 hours, Département d'Orthophonie, University Pierre et Marie Curie-Paris, France

Master: A. Piquard-Kipffer, French Language Didactics, 53 hours, ESPE, University of Lorraine, France

Master: A. Piquard-Kipffer, Psychology, 6 hours, M2, Department of Psychology, University of Lorraine, France

Continuous training: O. Mella, Computer science courses for secondary school teachers (ISN courses), 21 hours, ESPE, University of Lorraine, France

Continuous training: A. Piquard-Kipffer, Special Educational Needs, 53 hours, ESPE, University of Lorraine, France

Doctorat: A. Piquard-Kipffer, Language Pathology, 20 hours, EHESP, University of Sorbonne-Paris cité, France

Other: V. Colotte, Responsible for “Certificat Informatique et Internet” for the University of Lorraine, France (50000 students, 30 departments)

### 10.2.2. Supervision

PhD: Ken Déguernel, “Apprentissage de structures musicales en contexte d’improvisation”, University of Lorraine, March 6, 2018, Emmanuel Vincent and Gérard Assayag (IRCAM) [10].

PhD: Baldwin Dumortier, “Contrôle acoustique d’un parc éolien”, University of Lorraine, September 25, 2018, Emmanuel Vincent and Madalina Deaconu (Inria Tosca) [9].

PhD in progress: Amal Houdhek, “Synthèse paramétrique de parole arabe”, December 2015, cotutelle, Vincent Colotte, Denis Juvet and Zied Mnasri (ENIT, Tunisia).

PhD in progress: Imène Zangar, “Amélioration de la qualité de synthèse vocale par HMM pour la parole arabe”, December 2015, codirection, Vincent Colotte, Denis Juvet and Zied Mnasri (ENIT, Tunisia).

PhD in progress: Amine Menacer, “Traduction automatique de vidéos”, May 2016, Kamel Smaïli and Denis Juvet.

PhD in progress: Mathieu Fontaine, “Processus alpha-stable pour le traitement du signal”, May 2016, Antoine Liutkus and Roland Badeau (Télécom ParisTech).

PhD in progress: Anastasiia Tsukanova, “Coarticulation modeling in articulatory synthesis”, May 2016, Yves Laprie.

PhD in progress: Nathan Libermann, “Deep learning for musical structure analysis and generation”, October 2016, Frédéric Bimbot (IRISA) and Emmanuel Vincent.

PhD in progress: Lauréline Perotin, “Séparation aveugle de sources sonores en milieu réverbérant”, November 2016, Romain Serizel, Emmanuel Vincent, and Alexandre Guérin (Orange).

PhD in progress: Théo Biasutto, “Multimodal coarticulation modeling: Towards the animation of an intelligible speaking head”, December 2016, Slim Ouni.

PhD in progress: Sara Dahmani, “Modeling facial expressions to animate a realistic 3D virtual talking head”, January 2017, Slim Ouni and Vincent Colotte.

PhD in progress: Guillaume Carbajal, “Apprentissage profond bout-en-bout pour le rehaussement de la parole”, March 2017, Romain Serizel, Emmanuel Vincent, and Éric Humbert (Invoxia).

PhD in progress: Sunit Sivasankaran, “Exploiting contextual information in the speech processing chain”, July 2017, Dominique Fohr and Emmanuel Vincent.

PhD in progress: Ioannis Douros, “Combining cineMRI and static MRI to analyze speech production”, July 2017, Pierre-André Vuissoz (IADI) and Yves Laprie.

PhD in progress: Diego Di Carlo, “Estimating the Geometry of Audio Scenes Using Virtually-Supervised Learning”, October 2017, Antoine Deleforge and Nancy Bertin.

PhD in progress: Lou Lee, “Du lexique au discours: les particules discursives en français”, October 2017, Yvon Keromnes and Mathilde Dargnat (ATILF) and Denis Juvet.

PhD in progress: Nicolas Turpault, “Deep learning for sound scene analysis in real environments”, January 2018, Romain Serizel and Emmanuel Vincent.

PhD in progress: Raphaël Duroselle, “Adaptation de domaine par réseaux de neurones appliquée au traitement de la parole”, September 2018, Denis Juvet and Irina Illina.

PhD in progress: Nicolas Furnon, “Deep-learning based speech enhancement with ad-hoc microphone arrays”, October 2018, Romain Serizel, Irina Illina and Slim Essid (Télécom ParisTech).

PhD in progress: Ajinkya Kulkarni, "Synthèse de parole expressive par apprentissage profond", October 2018, Vincent Colotte and Denis Juvet.

PhD in progress: Manuel Pariente, “Deep learning-based phase-aware audio signal modeling and estimation”, October 2018, Antoine Deleforge and Emmanuel Vincent.

PhD in progress: Adrien Dufraux, “Leveraging noisy, incomplete, or implicit labels for automatic speech recognition”, November 2018, Emmanuel Vincent, Armelle Brun (LORIA), and Matthijs Douze (Facebook AI Research).

### 10.2.3. *Juries*

#### 10.2.3.1. *Participation in HDR and PhD juries*

Participation in the Habilitation (HDR) Jury for Anthony Larcher (University of Le Mans, December 2018), D. Juvet

Participation in the PhD jury of Anastasios Alexandridis (University of Crete, January 2018), E. Vincent.

Participation in the PhD jury of Marius Miron (University Pompeu Fabra, Spain, February 2018), E. Vincent, reviewer.

Participation in the PhD jury of Victor Bisot (Télécom ParisTech, March 2018), E. Vincent, reviewer.

Participation in the PhD jury of Boaz Schwarz (Bar-Ilan university, Israel, March 2018), A. Deleforge, reviewer.

Participation in the PhD jury of Jean-Rémy Gloaguen (École Centrale de Nantes, October 2018), E. Vincent, reviewer.

Participation in the PhD jury of Mathieu Andreux (Université Paris Sciences et Lettres, November 2018), E. Vincent, reviewer.

Participation in the PhD jury of Ming Xiu (Université de Strasbourg, December 2018), Y. Laprie.

#### 10.2.3.2. *Participation in other juries*

Participation in CAFIPEMPF Jury - Master Learning Facilitator, Académie de Nancy-Metz & Université de Lorraine, April, May 2018, A. Piquard-Kipffer

Participation in the Competitive Entrance Examination into Speech-Language Pathology Department, University of Lorraine, June 2018, A. Piquard-Kipffer.

## 10.3. Popularization

- Participation to the "Ada Lovelace Day" organized by Inria Nancy - Grand Est, October 2018 (A. Bonneau).

### 10.3.1. *Articles and contents*

- Interview for “GAFA : la voix est libre”, le Magazine de la Rédaction, *France Culture*, January 5, 2018 (E. Vincent)
- Interview for “Les enceintes connectées vont révolutionner vos vies et vous ne pourrez plus vous en passer”, *18h39.fr*, February 22, 2018 (E. Vincent)

- Interview for “Annecy 2018 : Dynalips, solution de lip-sync automatisée.”, *3DVF.com*, June 18, 2018 (S. Ouni)

### **10.3.2. Interventions**

- Demonstration at Journée des métiers, Collège Péguy, le Chesnay, April 2018 (A. Piquard-Kipffer)
- Exhibition of an automatic lip-sync system at The Annecy International Animation Film Festival, Annecy, 12-15 June 2018 (S. Dahmani, V. Girard, T. Biasutto-Lervat, S. Ouni)
- Demonstration at Fête de la Science, University of Lorraine, October 12, 2018 (N. Turpault, R. Serizel, E. Vincent)
- Demonstration and participation in a panel discussion at Forum des Sciences Cognitives, Artem, Nancy, November 7, 2018 (N. Turpault, E. Vincent)
- Invitation to Serbia Science Festival 2018 (Belgrade) by the French institute of Serbia to give four popularization lectures and present a demonstration on "teaching robots to hear us", November 2018 (A. Deleforge).

## ORPAILLEUR Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organization, General Chairs, Scientific Chairs

- Amedeo Napoli and Yannick Toussaint were the general chairs of the “21th International Conference on Knowledge Engineering and Knowledge Management” (EKAW 2018, <https://project.inria.fr/ekaw2018/>) held on November 12–16 2018 at Inria NGE/LORIA Nancy.
- Amedeo Napoli was the program chair with Sergei O. Kuznetsov (HSE Moscow) and Sebastian Rudolph (TU Dresden) of the sixth workshop FCA4AI (“What can do FCA for Artificial Intelligence”) co-located with the IJCAI-ECAI Conference in Stockholm, July 13 2018 (<http://fca4ai.hse.ru/> and <http://ceur-ws.org/Vol-2149/>).
- Amedeo Napoli was the co-chair with Sergei Kuznetsov of the track “General Topics of Data Analysis” at the AIST Conference in Moscow on July 5–7 2018 (7th International Conference on Analysis of Images, Social Networks, and Texts <http://aistconf.org/> and <http://aistconf.org/board/>).
- Miguel Couceiro was an organizer of the tutorial on “Majority Logic Synthesis” at the International Conference On Computer Aided Design (ICCAD 2018, <https://iccad.com/agenda/embedded-tutorials>, [23]).
- Miguel Couceiro and Jérôme David (Inria Rhône Alpes, MOEX) were the organizers of the workshop “Symbolic methods for data-interlinking” co-located with EKAW 2018 (<https://project.inria.fr/ekaw2018/workshops/>). This workshop was organized in the framework of EKAW 2018 and of the ANR project ELKER.

### 9.1.2. Scientific Animation

- The scientific animation in the Orpailleur team is based on the Team Seminar which is called the “Malotec” seminar (<http://malotec.loria.fr/>). The Malotec seminar is held in general twice a month and is used either for general presentations of members of the team or for invited presentations of external researchers.
- Members of the Orpailleur team are all involved, as members or as head persons, in various national research groups.
- The members of the Orpailleur team are involved in the organization of conferences and workshops, as members of conference program committees (AAAI, ECAI, ECML-PKDD, ESWC, ICCBR, ICDM, ICFCA, IJCAI, ISWC, KDD, SDM...), as members of editorial boards, and finally in the organization of journal special issues.

## 9.2. Teaching - Supervision - Juries

- All the permanent members of the Orpailleur team are involved in teaching at all levels and mainly at University of Lorraine. Actually, most of the members of the Orpailleur team are employed on “Université de Lorraine” positions.
- The members of the Orpailleur team are also involved in student supervision, at all university levels, from under-graduate until post-graduate students, engineers, PhD, postdoc students.
- Finally, the permanent members of the Orpailleur team are involved in HDR and thesis defenses, being thesis referees or thesis committee members.

## SEMAGRAMME Project-Team

### 8. Dissemination

#### 8.1. Promoting Scientific Activities

##### 8.1.1. Scientific Events Selection

###### 8.1.1.1. Chair of Conference Program Committees

- Sylvain Pogodalla: co-chair of **FG 2018** 23rd Conference on Formal Grammar [23].

###### 8.1.1.2. Member of Conference Program Committees

- Philippe de Groote: *The 23rd Conference on Formal Grammar*.
- Maxime Amblard: **25ème conférence sur le Traitement Automatique des Langues Naturelles (TALN 2018)**

###### 8.1.1.3. Reviewer

- Guy Perrier: **Universal Dependencies Workshop 2018**.
- Sylvain Pogodalla: **Symposium on Logic and Algorithms in Computational Linguistics 2018 (LACompLing2018)**, **25ème conférence sur le Traitement Automatique des Langues Naturelles (TALN 2018)**.
- Maxime Amblard: **The 56th Annual Meeting of the Association for Computational Linguistics, 25ème conférence sur le Traitement Automatique des Langues Naturelles (TALN 2018)**

##### 8.1.2. Journal

###### 8.1.2.1. Member of Editorial Boards

- Philippe de Groote: area editor of the *FoLLI-LNCS series*; associate editor of *Higher-Order and Symbolic Computation*; member of the editorial board of *Cahiers du Centre de Logique*.
- Sylvain Pogodalla: Member of the editorial board of the journal *Traitement Automatique des Langues*, in charge of the *Résumés de thèses* section.
- Maxime Amblard: Member of the editorial board of the journal *Traitement Automatique des Langues*, in charge of the hard copy editorial process, Editor of the (In)coherence of Discourse (upcoming volume of the **Language, Cognition, and Mind** series)

###### 8.1.2.2. Reviewer - Reviewing Activities

- Philippe de Groote: **Journal of Language, Logic and Information, Journal of Logic and Computation, The Review of Symbolic Logic**.
- Sylvain Pogodalla: (In)coherence of Discourse (upcoming volume of the **Language, Cognition, and Mind** series), **Journal of Language, Logic and Information**.
- Maxime Amblard: (In)coherence of Discourse (upcoming volume of the **Language, Cognition, and Mind** series), **Journal of Language, Logic and Information, ACM - Transaction on multimedia computing communication, Traitement Automatique des Langues**.

##### 8.1.3. Invited Talks

- Philippe de Groote gave an invited talk at the *Symposium on Logic and Algorithms in Computational Linguistics 2018 (LACompLing 2018)*, 28-31 August 2018, Stockholm, Sweden [11].
- Maxime Amblard gave four invited talks:
  - at the *Colloque Cathy Dufour*, November 2018, Nancy [6];
  - at the *EMLex lecture series/Séminaire de l'ATILF*, March 2018, Nancy [7];

- at the *Recherches linguistiques et corpus, séminaire STIH de la Faculté des Lettres de Sorbonne Université*, March 2018, Paris [9];
- at the *Linguistique textuelle, linguistique de corpus*, April 2018, Metz [8].
- Maria Boritchev gave a talk to the *Séminaire des doctorantes et doctorants en informatique*, June 2018, Paris [10].

#### 8.1.4. Leadership within the Scientific Community

- Philippe de Groote: president of SIGMOL, *Association for Mathematics of Language, a Special Interest Group of the Association for Computational Linguistics*; member of the LACL steering committee.
- Bruno Guillaume: Management Committee Substitute of the COST Action CA16105 "European Network for Combining Language Learning with Crowdsourcing Techniques" ([http://www.cost.eu/COST\\_Actions/ca/CA16105](http://www.cost.eu/COST_Actions/ca/CA16105)).
- Sylvain Pogodalla: member of the LACL steering committee; member of the Formal Grammar standing committee.
- Maxime Amblard: head of the work package on Natural Language Processing of the OLKI project (PIA funding), leader of the semantics topic for the national pre-GDR on *Traitement Automatique des Langues*.

#### 8.1.5. Scientific Expertise

- Philippe de Groote: member of the scientific council of the LIRMM, *Laboratoire d'Informatique, de Robotique et de Microélectronique de Montpellier*; member of the scientific council of the AREN e-FRAN project, *ARgumentation Et Numérique*.
- Sylvain Pogodalla: expert for the Research Executive Agency (REA) of the EU.
- Maxime Amblard: expert for the *Agence Nationale pour la Recherche* (ANR), expert for the *Haut Conseil de l'évaluation de la recherche et de l'enseignement supérieur* (HCERES).

#### 8.1.6. Research Administration

- Philippe de Groote:
  - Member of the *bureau du comité des projets d'Inria Nancy – Grand Est*.
- Sylvain Pogodalla:
  - Elected member of the *comité de centre d'Inria Nancy – Grand Est*, in charge of the *commission IES (information et édition scientifique du centre d'Inria Nancy – Grand Est)*.
- Bruno Guillaume:
  - Head of the Loria department NLPKD (Natural Language Processing and Knowledge Discovery).
  - Animator of the CPER 2015-2020 project *Langues, Connaissances et Humanités Numériques* (Languages, Knowledge and Digital Humanities) in which ten laboratories of the *Université de Lorraine* participate.
  - Member of the Comipers (Inria committee for PhD and Post-doctoral selection).
- Maxime Amblard:
  - Member of *conseil scientifique* of *Université de Lorraine*, in charge of the working group on *publicants*.
  - Standing invitee at the *pôle scientifique AM2I* of *Université de Lorraine*.
  - Member of the *Sénat Académique* of *Université de Lorraine*.
  - Member of the progress commission of *Université de Lorraine*.

- Member of the administration council of the *Institut des sciences du digital, management et cognition*.
- Member of the board of the Maison des sciences de l'homme, MSH-Lorraine.
- Head of the master in Natural Language Processing (master 1 and 2).
- Member of the McF selection committee 4373 (section 7 and 27), Université Paris Sorbonne.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

#### Licence:

- Maxime Amblard, Introduction au TAL, 4h, L1, Université de Lorraine, France
- Maxime Amblard, Ingénierie linguistique, 20h, L3, Université de Lorraine, France
- Timothée Bernard, Algorithmique, 24h, L3, Université Paris Diderot, France.
- Clement Beysson, Représentation Avancée de Données, 20h, L2, Université de Lorraine, France.
- Clement Beysson, NUMOC, 40h, L1, Université de Lorraine, France.
- Clement Beysson, Algorithmique et Programmation 1, 16h, L1, Université de Lorraine, France.
- Clement Beysson, Introduction aux bases de données, 8h, L2, Université de Lorraine, France.
- Clement Beysson, Système 2, 12h, L3, Université de Lorraine, France.
- Maria Boritchev, Formalismes et représentations de raisonnements, 20h, L3, Université de Lorraine, France
- Maria Boritchev, Algorithmique 1, 22h, L1, Université de Lorraine, France
- Pierre Ludmann, Informatique 1, 20h, L3, Mines Nancy, France.
- Pierre Ludmann, Informatique 2, 40h, L3, Mines Nancy, France.

#### Master:

- Maxime Amblard, Python Programming (english), 44h, M1, Université de Lorraine, France.
- Maxime Amblard, Algorithms (english), 30h, M1, Université de Lorraine, France.
- Maxime Amblard, Methods for NLP (english), 36h, M1, Université de Lorraine, France.
- Maxime Amblard, Remise à niveau (english), 3h, M1/M2, Université de Lorraine, France.
- Maxime Amblard, Formalisms (english), 24h, M2, Université de Lorraine, France.
- Maxime Amblard, Programming Project (english), 3h, M2, Université de Lorraine, France.
- Timothée Bernard, Projet TAL, 18h, L3/M1, Université Paris Diderot, France.
- Timothée Bernard, Sémantique computationnelle, 20h, M1, Université Paris Diderot, France.
- Clement Beysson, Algorithmique et Complexité, 22h, M1, Université de Lorraine, France.
- Maria Boritchev, Technology and Innovation (english), 15h, M1, Université de Lorraine, France.
- Maria Boritchev, Remise à niveau (english), 3h, M1/M2, Université de Lorraine, France
- Philippe de Groote, Computational Semantics, 18h, M2, Université de Lorraine, France.



Philippe de Groot, Computational structures and logics for natural language modeling, 18h, M2, Université Paris Diderot – Paris 7, France.

Bruno Guillaume, Remise à niveau TAL (english), 6h, M1/M2, Université de Lorraine, France.

Bruno Guillaume, Written Corpora TAL (english), 30h, M1, Université de Lorraine, France.

Pierre Ludmann, Introduction à C/C++, M1/M2, Mines Nancy, France.

### 8.2.2. Supervision

PhD in progress:

William Babonnaud, *Sémantique lexicale, compositionnalité et coercition de types*, since September 2018, Philippe de Groot.

Clement Beysson, *Quantificateurs généralisés dynamiques pour l'analyse discursive*, since September 2015, Philippe de Groot and Bruno Guillaume.

Maria Boritchev, *Dialogue Dynamics Modeling in the Simple Theory of Types*, since September 2017, Maxime Amblard and Philippe de Groot.

Pierre Ludmann, *Construction dynamique des structures discursives*, since September 2017, Philippe de Groot and Sylvain Pogodalla.

### 8.2.3. Juries

- Maxime Amblard was member of the jury of the master thesis of the master of NLP (12 students).
- Maxime Amblard was member of the jury PhD thesis of Mehdi Mirzapour, Modeling Preferences for Ambiguous Utterance Interpretations, September 28th, 2018, Université de Montpellier.
- Michel Musiol was member of the jury PhD thesis of Marine Labalestra November 21th, 2018, Université de Reims Champagne Ardenne
- Michel Musiol was member of the jury PhD thesis of Sarah Del Goleto, *Du déficit de l'intégration contextuelle au trouble de la mentalisation dans la schizophrénie - études électrophysiologiques et comportementales de la compréhension de l'ironie.*, December 4th 2018, Université Paris 8

## 8.3. Popularization

### 8.3.1. Internal or External Inria Responsibilities

- Maxime Amblard is the vice head of editorial board of [Interstices.info](http://Interstices.info)

### 8.3.2. Articles and Contents

- Karèn Fort and Bruno Guillaume have published an article in Interstices [27] about ZombiLingo. The paper explain to non-specialists how crowdsourcing may be used to build resources that are needed for Natural Language Processing applications. They explain the aim of the project.
- Maxime Amblard has written articles for [Interstices.info](http://Interstices.info) as *Idée reçue : Les algorithmes prennent-ils des décisions ?*

### 8.3.3. Education

- Maxime Amblard participates in the event *S'orienter et se réorienter dans les sciences numériques* under the patronage of FAFIEC, ONISEP Grand Est and Académie de Nancy-Metz, November 14th, 2018

### 8.3.4. Interventions

- Maria Boritchev participated in *Samedi des curieux*, March 2018, Paris France: [Comment confondre de faux témoignages ?](#)

- Maxime Amblard participates in the Ada Lovelace day in Nancy Grand-Est
- Maxime Amblard gave a talk about ethics in Artificial Intelligence at the *Café des Sciences* of the Cognitive science student association
- Maxime Amblard was organizer of the *forum des sciences cognitives 2018* in Nancy
- Maxime Amblard has organized and supervised two panel discussions (new trend in IT recruitment and New Challenge for Neural Networks in Artificial Intelligence and NLP) for the *forum des sciences cognitives 2018*

### **8.3.5. Creation of Media or Tools for Science Outreach**

- Maxime Amblard was the leader of the project Happy Family card Games, where a group of 10 researchers develop such a game for promoting computer science as a scientific field and give epistemological perspectives. More than 10 000 copies are printed and the promotion of the project will be in 2019.